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A High School Social Studies Curriculum for Able Students: An Audio-Visual Component to a High School Social Studies Curriculum for Able Students. Final Report.

Carnegie-Mellon Univ., Pittsburgh, Pa. Social Studies Curriculum Center.

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A project to develop a sequential and cumulative social studies curriculum for able students in grades 9-12 was carried out by Carnegie-Mellon University in partnership with the Pittsburgh Public Schools. The general goal of the curriculum--to help each student develop to the limit of his ability into an independent thinker and an informed, responsible citizen--was divided into four subgroups attitudes, values, inquiry skills, and knowledge. The courses prepared were "Comparative Political Systems and Comparative Economic Systems" (9th grade), "The Shaping of Western Society and Studies of the non-Western World" (10th grade), "The American Experience" (11th grade), and "An Introduction to the Behavioral Sciences and the Humanities in Three Cities: Ancient Athens, Renaissance Florence, and Modern New York" (12th grade). A book of readings, an audiovisual kit, a teacher's manual, and an examination program were developed for each course. Two books and 12 films were completed to explain, to teachers, the curriculum and methods of using it. The results from testing the curriculum in the Pittsburgh Public Schools indicated that students in experimental-curriculum classes made significantly greater gains than did those in control classes. (LH)

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A HIGH SCHOOL SOCIAL STUDIES CURRICULUM FOR ABLE STUDENTS

AN AUDIO-VISUAL COMPONENT TO A HIGH SCHOOL SOCIAL STUDIES CURRICULUM FOR ABLE STUDENTS

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APRIL, 1969

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Summary

Traditional social studies curriculum development based on the use of a conventional textbook and a course of study developed locally by teachers has failed for six reasons to meet the needs of modern education. First, narrative texts make a poor basis for instruction except for knowledge objectives. Second, beginning with a narrative text assumed that audio-visual materials are mere supplements or aids instead of integral parts of an educational system. Third, traditional curriculum work assumed that a study guide consisting of general objectives and a detailed list of topics supplemented by references to books and audio-visual materials made up an appropriate guide to learning experiences. Fourth, curriculum development of the sort described assumed that a course of study pulled disparate parts of the educational enterprise together. Fifth, teacher-written courses of study often lagged years behind the research discoveries of scholars. Finally, traditional curriculum work failed to link learning experiences from one year to those of another so that learning would become cumulative and sequential. These shortcomings have led to new systems for developing social studies materials through curriculum projects.

Since 1962, more than fifty major projects have been organized to develop social studies materials. They differ in scope, method of organization and control, extent of financial support, and objectives. Despite these differences, they resemble each other more than any of them resembles traditional curriculum work.

In partnership with the Pittsburgh Public Schools, Carnegie-Mellon University received three grants which totaled $364,000 for a project to develop a sequential and cumulative curriculum for able students in the social studies in grades nine through twelve. The project began in May, 1963, and lasted until October, 1967. The staff consisted of a Project Supervisor, two Co-Directors, an Audiovisual Director, a Project Evaluator, ten Consultants from Carnegie Institute of Technology and from the Pittsburgh Public Schools, and twenty-five Cooperating Teachers. Their names are listed under Project Personnel in the Final Report. The staff proposed to develop the following courses each consisting of a book of readings, an audio-visual kit, a teacher's manual, and an examination program:

Ninth grade: Comparative Political Systems and Comparative Economic Systems
Tenth grade: The Shaping of Western Society and Studies of the Non-Western World
Eleventh grade: The American Experience
Twelfth grade: An Introduction to the Behavioral Sciences and The Humanities in Three Cities: Ancient Athens, Renaissance Florence and Modern New York.

The staff of the Project made five major miscalculations. First, we undertook far too much work in too short a time period. The development and trial of each year's materials should have taken place in a

two-year period; instead it was packed into one. None of the materials we released into the public domain were good enough to merit publication without substantial revision because of the speed with which they had been prepared. Second, our staff was too small. We needed six full-time people; we had one full-time secretary and in most years a professional staff of three, each of whom worked three-quarters time on the project. Third, we had insufficient funds. To have developed materials worthy of immediate publication and dissemination would have required about four times the funds available to us. Fourth, we began the project without a thoroughly developed rationale. Finally, our evaluation procedure, based primarily on standardized testing instruments, failed to assess major aspects of our objectives in the affective domain and measured imperfectly the development of inquiry skills.

We believe that curriculum work should be done by experts. Neither social scientists from universities who have not taught in the schools nor classroom teachers who often lack both writing skills and recent scholarly knowledge can write excellent materials. Developing an educational system for a sequence of courses requires sustained effort by a staff of full-time workers who know learning theory, have command of recent scholarly findings in content areas, and have taught in the schools. Moreover, each member of such a staff should personally test the materials he prepares.

Our rationale developed slowly during the life of the project. We defined able students as the top twenty percent in a typical high school. These students usually have I.Q. scores of 115 or better as well as other characteristics of talented people, such as a marked ability to handle abstract ideas. We assumed that these students should be grouped separately so that they could be challenged to work to capacity.

The overall goal of our curriculum is to help each student to develop to the limit of his ability into an independent thinker and an informed, responsible citizen of a democratic society. We divided this general goal into four subdivisions--attitudes, values, inquiry skills, and knowledge. We tried to develop teaching strategies which would instill in our students attitudes such as willingness to cooperate with others, willingness to listen to many sides of an argument, and desire to rely on scientific findings rather than some other test for truth. Without determining in advance what values children should hold, we raised value questions consistently to challenge students to clarify their judgments about basic value dilemmas such as the nature of the good man, the good life, and the good society.

Our third major set of objectives focuses on inquiry skills. Students must have sophisticated inquiry skills if they expect to develop the ability to cope with the knowledge explosion. The staff developed a six-step statement of a mode of inquiry and tried consistently to teach both the entire inquiry process and the individual cognitive skills which it involved.

We use the term "mode of inquiry" synonymously with what Joseph J. Schwab has called the structure of a discipline. Schwab argues that a discipline's structure consists of a conceptual apparatus which guides the search for data and a proof process by the use of which an investigator can validate hypotheses. We identified a list of nineteen analytical concepts drawn from political science, economics, anthropology, and sociology and developed with each concept a number of analytical questions to guide the search for data. We built knowledge of these concepts and ability to use them to identify problems and form hypotheses into the first four courses of the sequence. We also developed students' skill with the use of a sophisticated proof process. By the beginning of the third year of the curriculum, students who have reached course objectives are prepared to investigate issues independently. In addition to working with analytical concepts, the staff developed a classification scheme for the six types of concepts used in social studies and found ways to use the scheme to make the process of inquiry more understandable to students.

Our fourth major subset of objectives stressed acquisition of knowledge. We used four criteria to select content. We chose materials designed to assist students to learn the concepts and proof processes involved in the mode of inquiry. We looked for materials which fit the interests and needs of adolescents in modern American society. We chose materials which stressed knowledge about contemporary governmental, economic, and social problems. Finally, we selected knowledge which would help students to do well on college board examinations, become intelligent citizens, and lead fruitful intellectual lives amid the abundant opportunities for humanistic growth in modern democratic society. Whenever possible, we stated specific objectives in behavioral terms.

Our objectives and the realities of the schools conditioned the order of courses in the curriculum. We began the sequence with courses which stressed knowledge of concepts from social science, concepts which form the basis of hypothesis formation in our inquiry scheme. The history courses followed later in the sequence. We also arranged courses to draw on the major subject competencies of teachers at various grade levels, that is, civics in ninth grade, world history in tenth, American history in eleventh, and electives in twelfth. This decision may well prove to be an important factor in the willingness of teachers to adopt our materials to replace those which they are presently using.

A range of objectives requires a range of teaching strategies. Our curriculum employs strategies on every point of the continuum from pure exposition in the form of short lectures or recitation questions to pure discovery exercises, which we use primarily to evaluate students' progress. Most of our lesson plans, however, call for a form of directed discussion in which the teacher gives cues in the form of questions. Directed discussion encourages the simultaneous pursuit of multiple objectives such as the development of attitudes to learning, the growth of inquiry skills, and the acquisition of knowledge. A different form of directed discussion of the type developed at Harvard by Donald

Oliver and his colleagues has proved particularly useful for value clarification.

We have also utilized a wide variety of materials. In the history courses, expository essays which read much like conventional textbook accounts link one chapter to another. From them students have been able to acquire the knowledge they need for standardized examinations. Most of our reading material, however, consists of excerpts from sources or secondary accounts with an introduction and study questions provided to give context and indicate fruitful lines of investigation. The audio-visual component includes transparencies, filmstrips, recordings, dittoed handouts, and simulations. Finally, extensive supplementary reading lists accompany each course.

The staff developed a testing program for each course. Both multiple choice questions and essay questions were used. The multiple choice items tested knowledge of content and ability to use inquiry skills. The essays also tested these two outcomes, but stressed inquiry skills. Research papers proved to be an excellent way to assess whether or not students had mastered an inquiry process well enough to become independent investigators. We were unable to develop a useful testing program for our affective goals.

Because we had changed objectives, materials, teaching strategies, and evaluating instruments, we felt compelled to provide materials to explain our curriculum to teachers. Edwin Fenton, Project Co-Director, published two books, written independently of his obligations with the project. They are Teaching the New Social Studies in Secondary Schools: An Inductive Approach (Holt, Rinehart and Winston, Inc., 1966) and The New Social Studies (Holt, Rinehart and Winston, Inc., 1967). The staff of the project also made twelve kinescopes showing members of Carnegie's Social Studies Curriculum Center teaching material developed by the project to high school students. In addition to these general aids, the staff wrote a short rationale for each course and developed daily lesson plans each of which indicates one method to reach a specified set of objectives with a certain teaching strategy. Teachers found these lesson plans most useful.

As soon as our research on the first four courses was complete in 1966, the staff of the project released those materials into the public domain. The courses for the last two years were released in 1967. The staff then chose to revise a version of the curriculum for the needs of average and above average students for Holt, Rinehart and Winston, Inc., one of four companies which bid for our services. The first four courses in this series were published during 1967 and 1968; the courses for the last two years will be published in August, 1969. Each course consists of a volume of readings with introductions and study questions, an audiovisual kit, a teacher's manual, and an examination booklet.

Publishing materials through a large commercial house is the major way in which the project staff hopes to disseminate the results of its research. Dissemination will also take place through the twelve films and the two books previously referred to, a short rationale and model units for each of five books distributed free of charge by Holt, a number of articles written by members of the project staff, some three hundred speeches given outside Pennsylvania by staff members during a five year period, two full-time field representatives employed by Holt to demonstrate materials, and a number of telelectures given to groups of teachers by members of the staff of the project. In addition, Carnegie has been host to seven NDEA Institutes which have attracted 400 teachers to our campus during summers and to three Experienced and Prospective Teacher Fellowship Programs which have enabled a total of fifty-six excellent teachers to study in degree programs on the campus for a full year. While they were in residence, these teachers had an opportunity to study the work of the project staff and to become thoroughly acquainted with project materials. Many of them have become excellent agents of dissemination for the materials of all the social studies projects which they have studied on campus.

Our research about the aims of social studies instruction and about suitable methods, materials, and learning sequences to accomplish these aims has already been touched on in this summary. The results of our school trial and evaluation remain to be examined. The Project Evaluator, assisted by officials from the Pittsburgh Public Schools, selected a group of students who were entering ninth grade in September, 1963, as the subjects of what Michael Scriven has called formative evaluation. In September, 1964, the evaluator selected a pool of 463 able students and divided them randomly into experimental and control groups as subjects for summative evaluation.

These groups took a battery of eight standardized tests over a two year period. The experimental group made significantly greater gains than the control group only on a test of economic understanding. The experimental group suffered no loss in the amount of knowledge acquired during their study, however, despite the fact that the tests used examined for content taught in the traditional curriculum. But neither did the experimental group show significant improvement compared to the control group in skills of critical thinking as tested by standardized instruments such as the Watson Glazer Critical Thinking Appraisal or the Social Studies STEP Tests. Yet, the teachers of experimental classes insisted that their students were learning valuable skills which were not being tested by conventional instruments.

Hence, the project staff developed The Carnegie Test of Social Studies Inquiry Skills, an objective test containing fifty items designed to assess knowledge of and ability to use the mode of inquiry stressed in our curriculum. A copy of the test appears in the Appendix to this Report. The results on this examination, taken by a total of 190 students in two high schools where experimental and control classes had been maintained for the full four years of the project's life, support the conclusion that students in the experimental classes made significantly greater gains in the behaviors measured by the test than their peers in control sections. An item analysis of the CTSSIS revealed that students in experimental sections performed significantly better than students in comparative sections on each of the eleven behaviors tested except the ability to recognize generalizations which follow logically from a hypothesis.

The project staff was able to devise no reliable test for its affective objectives. Answers to questionnaires, however, indicated favorable attitudes on the part of students to project classes. Thirty percent of the experimental group, for example, indicated that social studies had been their favorite high school course.

CHAPTER I
HOW TO ORGANIZE CURRICULUM PROJECTS

Traditional Curriculum Development

Two major techniques have been used to bring about curricular change in the social studies. In the past, most change originated within an individual school or a school system where committees of teachers wrote courses of study to guide children's learning experiences. Although the recommendations of national committees usually influenced the content of these courses of study, the impetus for change remained in the hands of classroom teachers. Within the past five years, however, more than fifty curriculum projects have been organized to affect social studies curriculum in a new and distinctively different way. The Carnegie Curriculum Project has been one of these.

In the past, committees of teachers were responsible for curriculum development. In a typical school system, a curriculum supervisor, principal, or superintendent appointed a committee to choose a text for a course. After examining books submitted by publishers, the committee selected one as most appropriate to the needs of students in the school. Usually the school board rubber-stamped the choice of the committee. Then a second committee, sometimes but not always composed of the same personnel, wrote a course of study. This document usually included a short set of objectives stated in terms of "appreciations," "understandings," and "skills," a long outline of content, lists of suggested teaching activities, a bibliography for teachers and/or students, and suggestions about the use of audio-visual materials.

This document, varying in length from a few pages to a volume almost as large as the text itself, went to each teacher in the school system who taught the course for which it was designed. Teacher use varied. Some instructors filed the document in the bottom drawer of their desks, never to look at it again. Others followed its suggestions religiously, building examinations around the expected knowledge outcomes. On the whole, this sort of curricular construction failed to meet the needs of students and teachers living in the middle of the twentieth century.

Traditional curriculum development failed for six major reasons. First, it assumed that the correct starting place for curriculum construction was a narrative textbook. Textbooks in a course such as eleventh grade American history were designed primarily for content objectives. Change toward stressing the use of a mode of inquiry or toward affective goals could not be brought about effectively with a narrative textbook as the core of instruction. Texts bristled with facts and generalizations. They trapped their users into the fallacy of coverage. Teachers assumed that they should transmit the knowledge covered in the textbook to the heads of students. Moreover, many texts were dull, forcing teachers to resort to histrionics to induce some students to study.

Secondly, beginning with a narrative textbook assumed that all other materials of instruction were mere supplements. The bibliographies appended to courses of study, as well as the long lists of films, filmstrips, and recordings gave teachers wide latitude for choice. This technique implied that teachers could use or ignore audio-visual materials at will. Many objectives of instruction, however, can be achieved more appropriately with transparencies, tapes, filmstrips, films, or other audio-visual materials than they can with print.

Third, traditional curriculum development assumed that an expansion of the table of contents of the textbook made up the most appropriate guide to learning experiences. In reality most courses of study used in the schools consist of extended outlines of material covered in the text. In some cases these outlines relate to loosely-stated objectives; in most, they do not. Frequently, a variety of suggested "learning experiences" follow the content outlines. Starting with a content outline assumes that mastery of facts and generalizations should be the major objective of instruction. In a period when the total quantity of mankind's knowledge doubles each decade, this assumption is no longer valid, if it has ever been so.

Fourth, curriculum development on a local level assumed that a course of study pulled disparate parts of the educational enterprise together. It assumed that if films were recommended they would be available; in many cases they were not. It assumed that books recommended for teachers and students would be in the school library; often they were missing. It assumed that teachers would examine the course of study with care in order to make each of its elements contribute to a coordinated learning experience. Many teachers failed to do so. Given an oppressive work load, how could they examine each of a dozen filmstrips recommended in a course of study in order to choose the one most appropriate to a particular learning experience?

In the fifth place, teacher-written courses of study often lagged far behind the research of scholars. A typical high school teacher, out of college or graduate school a decade or so, fell hopelessly behind the latest scholarly research. The work load of teachers leaves them no time to keep up with scholarly journals even if their school libraries subscribe to them, which most do not. Moreover, many of the statements in textbooks lagged behind knowledge discovered in the graduate schools. Finally, most teachers were unable to keep pace with research in learning theory. For these reasons, both what was being taught and the way in which it was being taught often rested on principles discarded long before by research workers.

One additional shortcoming of locally developed curriculum guides remains to be mentioned. Most school systems failed to link learning experiences from one year to the next. Courses of study were often written out of sequence--the eleventh grade one year, the ninth in the next, the twelfth in the third, and the tenth in the fourth. How can a school build a closely coordinated and sequential set of learning experiences with a system like this? In addition, four different committees, rather than one, often wrote these courses of study. Moreover, with the exception of a short list of loosely-stated goals - "to appreciate the advantages of the American way of life," for example - no overall objectives guided curriculum decisions. Finally, little attempt was made to help senior high school teachers to know what students had learned in earlier grades. In many schools, the teacher of eleventh grade American history cannot name the authors of the text used in eighth grade American history. Sequential and cumulative learning cannot take place properly under these conditions.

The failure of local committees to improve teaching in the social studies led to reform on the national level. National efforts have been made in the past, of course, but curriculum development since 1962 has taken a new path. The report of the Committee of Seven (1899), the report of the Committee on the Social Studies (1916), the work of Charles Beard's group in the 1930's, and the Preliminary Report of the Committee on Concepts and Values of the National Council for the Social Studies (1956) all made recommendations about scope and sequence, but they did not produce curricular materials. They left this key task to textbook writers, professional publishers, and local committees of teachers. Instead of merely making recommendations, the curriculum projects of the 1960's focused their efforts on developing materials of instruction.

The New Curriculum Projects

Since 1962, more than fifty social studies curriculum reform projects have been organized in the United States. They may be classified in a number of different ways, four of which--scope, organizational control, financial resources, and types of objective--are probably most useful for purposes of analysis.

The scope of the curriculum reform projects varies widely. At least three--those at Education Development Center, the Educational Research Council of Greater Cleveland, and the University of Minnesota--are writing complete curricular sequences from kindergarten through high school. A much larger number, of which Carnegie's is one, propose to develop from two to six years of curricular materials. A third group of projects, such as the High School Geography Project, concentrate on a single course for either a semester or a year. A fourth group, rather than develop a course or sequence of courses, produces materials which can be incorporated within traditional courses of study. The anthropologists at the University of Georgia, Sociological Resources for Secondary Schools, and some of the centers associated with the Developmental Economics Education Program follow this pattern.

A second classification scheme focuses on the way a project is organized and controlled. Private, non-profit organizations run a few such as EDC, the Greater Cleveland group, and DEEP. Learned societies control others, the anthropology, sociology, and geography projects, for example. A third group--all those supported by the original (1963) Project Social Studies grants of the United States Office of Education--are located in universities where one or two professors are in charge. Finally, a few school systems, such as the Newton Public Schools, run their own projects, often with the assistance of university professors hired as consultants.

A third way to classify projects ranks them by the amount of their financial support. A few have very large resources compared to the objectives they wish to accomplish. Among these are EDC and the projects funded by the National Science Foundation for the development of materials in sociology, anthropology, and geography. Generous financing supports full-time directors, a large permanent staff, a steering committee of consultants, a host of writers, and a widespread field test by classroom teachers. Some of these projects are spending more than a million dollars to develop a single course or a few units. The intermediate range in financing--primarily those projects supported by the Office of Education--have received from one to four hundred thousand dollars to develop between two and four years of curricular materials. These projects have much smaller staffs; they usually do not have a steering committee; their directors do much of the writing; their field trials are limited to nearby schools. Finally, a few projects operate on a remarkably small scale. Professor Lawrence Senesh at Boulder runs what is essentially a one-man show. The Newton, Massachusetts schools have been producing an interesting history curriculum with neither a grant nor a full-time staff. Some of the DEEP economics projects involve only one or two people.

Finally, the projects can be classified by the types of objectives they stress. A few have been designed primarily to update materials so that content is based on the latest scholarly knowledge. At least one project, however, stresses affective goals to the point that knowledge of traditional content is almost incidental. A third group of projects emphasize inquiry skills in order to teach students how to cope with the knowledge explosion. In reality, all of the projects combine stress on content, the affective domain, and inquiry skills. Students must inquire about something, and they must have attitudes about inquiry if they are to learn. Still, the emphasis on the three clusters of objectives varies widely from one project to another.

Organization of the Carnegie Project

Carnegie's Social Studies Development Center is one example of an intermediate curriculum reform project which has tried, in a university setting, to write four years of curriculum for all three clusters of objectives. Its successes and failures, its trials and tribulations, may help to suggest guidelines for future curriculum workers contemplating similar endeavors. Before examining our mistakes and our achievements, we shall describe briefly what we set out to do.

The Carnegie group in a close partnership with the Pittsburgh Public Schools proposed to develop, during a four-year period, a new sequential and cumulative curriculum for able students in grades nine, ten, eleven, and twelve. We proposed to write all of the student and teacher material, to test it in the schools, to rewrite it, and to retest it. Our product was to include all of the required student reading, a complete audio-visual component, an extensive teacher's manual consisting primarily of daily lesson plans, a carefully planned program of supplementary student reading, and a program of teacher preparation. We also proposed to evaluate the program and to report its effect as measured against the work of students in control groups.

The organization chart was simple and straightforward. John R. Coleman, Dean of Humanities and Social Sciences at Carnegie Institute of Technology, was to devote one-eighth of his time for four years as Project Supervisor. In addition to taking responsibility for the scholarly accuracy and some of the writing in the ninth grade course in Comparative Economic Systems, he was to assume administrative control of the project at the University. Under his supervision co-directors were appointed, one from Carnegie and one from the Pittsburgh Schools. Each co-director was to devote three-quarters of his time to the project for its four years of life. In addition to day-to-day administrative chores, they were to do most of the writing. A full-time secretary was hired to type and assemble materials with the assistance of clerical aides when work was pressing. After the first year of the project, a supplementary grant added a full-time Audio-Visual Director. From the beginning we had the half-time services of a psychometrician in charge of the evaluation. In addition to this permanent staff, six teachers from the Pittsburgh Public Schools joined us each summer to write materials and learn to teach them during the following year. From time to time, consultants from the Carnegie faculty or the Pittsburgh Schools loaned their knowledge and skills to the project as advisors. Only a few of them received financial compensation for these services.

Our original grant for the entire project was $250,000, or $62,500 per year. At the end of the first year, we received a supplementary grant of $22,500 to bring to the campus twelve teachers and professors to help us develop materials for the tenth grade course and to learn about curriculum development techniques. In September of 1965 we received a second supplementary grant of $92,000 to produce a complete audio-visual component for the project. Our funds totaled $364,000 or an annual sum of $91,125. These figures indicate the nub of our difficulty: we tried to do entirely too much with entirely too little.

We hasten to add, however, that we are solely responsible for the design of our project. Although in retrospect we would have benefited if officials in the Office of Education had questioned the relationship of appetite to capacity, we would probably have protested vigorously at the time if suggestions for revision of our proposal had been made. Like other people in universities, we very much feared domination by the government, a danger which failed entirely to materialize.

For the benefit of people who may wish to undertake similar ventures in the future, let us delineate what seem in retrospect to be our five most serious miscalculations. No matter how large a staff we might have had, we proposed to do too much in too little time. An explanation of our schedule may make this point clear. We received our grant in May, 1963. Until June of that year, Edwin Fenton, one of the co-directors, continued to teach his full schedule in the University. Howard Mehlinger, the co-director appointed to the project by the Pittsburgh Schools, was still in Lawrence, Kansas, where he was a teacher. Neither man could be freed of his other duties until midway in June. In the meantime, Mr. John Soboslay, an excellent teacher released from his classroom duties by the Pittsburgh Public Schools, began to plan a summer writing session. The remaining five teachers from the Pittsburgh Schools who were to be involved in the development of the first year's courses continued with their full-time duties in the schools until the last week in June. By the first of July when summer work began in earnest, our plans for the first year's courses were still incomplete.

Our first students were to begin studying the ninth grade course in September, 1963. We had to have materials ready. Professor James G. March agreed to suggest an outline for the course in Comparative Political Systems and Professor John R. Coleman for the course in Comparative Economic Systems. In June each presented a four or five-page statement containing major concepts from their disciplines and an outline around which a course could be built to the permanent staff of the project and some thirty teachers and administrators from the Pittsburgh Schools. Mr. Fenton expanded these statements into detailed outlines specifying topics for each of the sixty required readings in each course. During July and most of August, Messrs. Fenton and Mehlinger, six teachers from the Pittsburgh Public Schools, and a few graduate students from the University of Pittsburgh we could hire selected or wrote readings and wrote introductions and study questions for most of the political science course. Teachers also worked out lesson plans and developed some prototype audio-visual materials. By the day after Labor Day when school began, three-quarters of the first semester's course was developed.

Both Mr. Mehlinger and Mr. Fenton taught a section of this course in one of the Pittsburgh Public Schools. Mr. Mehlinger also taught a tenth grade course while Mr. Fenton continued to teach one course at Carnegie. In the remainder of his time, Mr. Mehlinger finished the materials for the first semester of the political science course while Mr. Fenton began to plan the economics course, a task which had been neglected during the hectic summer. The entire academic year was a race against deadlines. During the second semester, while Mr. Fenton and Mr. Coleman wrote the economics course, the ditto machine was sometimes only a week or so ahead of the students. No wonder the materials needed substantial revision at the end of the year!

Then came an even more difficult situation. During the summer of 1964, the staff was supposed to revise the political science and economics courses and write the two one-semester tenth-grade courses in _The Shaping of Western Society_ and _Studies in the Non-Western World_. At this critical juncture Mr. Mehlinger resigned, effective on August 1. A new co-director, John M. Good, was recruited to take his place. Even without Mr. Mehlinger's resignation, however, the work load for the next summer would have been impossible. The two co-directors who had taught the course and knew most of its shortcomings--Mehlinger and Fenton--would have been occupied in the development of a course for tenth grade, half of which had to be ready by September. Hence, energies would be dispersed widely: supervising the revision of the economics course, developing a rationale for _The Shaping of Western Society_, producing all the materials for _The Shaping of Western Society_, developing a rationale for _Studies in the Non-Western World_, and supervising the staff imported to write four units of that course. All this work had to be done within two months in the summer, two months during which none of the staff had a vacation.

Every other year proceeded at a similarly desperate pace. It proved difficult to develop a sequential and cumulative curriculum in this fashion. We wanted to try materials on tenth grade students who had studied the revised version of our ninth grade materials. In order to arrange a schedule like this, we could work on only one course or one revision of a course each year. Instead we worked on two. The pace we set for ourselves seriously detracted from the successful accomplishment of our objectives within the time we had allotted to the project.

Our second major error grew from beginning the project with too small a staff. The project supervisor, Dean John R. Coleman, was to devote only one-eighth of his time to the project. An eighth of a man's time is too little to make him an efficient part of a working team. The two co-directors were to devote three-quarters of their time to the project. There was too much for them to do in thirty to forty hours a week. The project evaluator, devoting half-time to the project, found the co-directors so busy with other things that they failed to find sufficient time to consult with him. Hence, quite properly, he resigned at the end of the second year, arguing that his evaluation could never meet exacting standards. The teachers from the Public Schools, brought in to work for four weeks during the summer, devoted much of their time to learning what the previous courses in the project were all about before they could write new material. Periodically, the secretary was inundated with so much work that she disappeared behind mounds of paper piled on her desk.

A list of the major elements in our undertaking may make clear our additional staff needs. We had eight jobs to do.

1. To develop readings for four years of a social studies curriculum. Each reading averaged about 2500 words. There were 120 readings a year. The required readings alone total about 1,200,000 words, and we wrote both an original and a revised version of them.

2. To develop an audio-visual component to the project. This component was to consist of several hundred transparencies, more than fifty tapes, about forty single concept filmstrips, and twenty or thirty slide tapes. In addition, we contracted to make at least a half-dozen teacher training films.

3. To develop elaborate teacher's manuals. The project undertook to write a lesson plan--usually about two pages long--for every reading in every course. Our lesson plans for each version of the entire project run more than a thousand pages.

4. To prepare teachers from the Pittsburgh Public Schools to teach the new courses. Each summer we worked with from six to eight teachers from the Pittsburgh Schools. Theoretically, they were to help us write curriculum. In fact, most of them were not prepared for this job. Hence, we devoted much of our time during each summer to showing them what the project was about.

5. To visit teachers during the academic year. One of the jobs of the co-directors was to visit the cooperating teachers in

the Pittsburgh Schools. We made efforts to do so during the first year and then gave up. There was no time for visits.

6. To develop an evaluation. During the first year of the project, we used a number of standardized tests to evaluate our work. We learned quickly that many of our able students scored so well on the examinations before they were enrolled in the curriculum that no significant growth could possibly be detected on future administrations. Hence, we abandoned this system of evaluation. We decided to write new tests to assess ability to use a mode of inquiry and the attainment of affective objectives. These tests would have to be written by the co-directors, the only people who knew the curriculum well enough to write them. They were usually too busy at other tasks to do so.

7. To keep up good relationships with the Pittsburgh Schools. Mr. Mehlinger and Mr. Good, both of whom were employees of the Pittsburgh Schools on loan to the project, were supposed to keep the schools thoroughly informed about what we were doing. In the press of other business, they were sometimes unable to do so. Hence, misunderstanding occasionally developed between the project and the downtown administration of the schools or some of the teachers.

8. To disseminate what we had learned. After the project had been operative for a short while, we received a stream of requests for information in written form and an increasingly large number of requests for project personnel to speak to groups of teachers around the country. Since we had no money to print materials or circulate a newsletter, we had to wait to inform colleagues elsewhere of what we were doing until the public domain version of our materials could be released. We did feel an obligation to speak as often as we could, but our availability as speakers was limited by the amount of time we had to devote to more immediate problems.

Our third error was to embark on the project with insufficient funds. We needed many more full-time staff people. The teachers we employed for six weeks during the summer and professors we were able to employ part-time from the Carnegie faculty during the year did not meet our needs for writers efficiently. Too much time was required to learn about what we were doing for part-time people or summer help to be very useful. We needed more full-time staff badly.

We also needed more money to make mistakes. In order to save money we dittoed the first versions of our courses because ditto was so much less expensive than multilith. We ran off 400 copies. Those at the end of the run were always very light. The quality of our audio-visual component was poorer than it should have been. The equipment we used was inadequate, and we had no money to hire artists or professional photographers. Although many of the ideas for the audio-visual component still strike us as excellent, the execution left much to be desired. Moreover, we lacked funds to try our most innovative ideas--in simulation and the use of a data-bank particularly--because experiments with them seemed most risky and scarce resources had to be allocated to the development of a product we could confidently expect to succeed after only minor revision.

We also needed consultants badly. We would have liked to have had funds to send each course or part of each course out to a recognized expert in a particular field for scholarly criticism. We had no such funds. This kind of criticism had to wait until a commercial publisher agreed to expend what will probably total an additional half-million dollars to bring our materials into publishable form.

Finally, we needed more money to disseminate materials and to inform the academic community of what we were doing. We should have published a newsletter periodically; we had neither funds nor staff to do it. We should have produced sample units and distributed them in quantity, free of charge. Again, lack of funds hindered us. We should have kept a staff member on the road continuously to speak to teachers. Again lack of money stood in the way. And we should have run a somewhat more extensive field test with teachers who had not worked with project materials during the summer before they taught them.

Our fourth major mistake--although here we have some disagreement among members of our own staff--was our failure to begin with a sufficiently well-developed rationale. For a year before our project was funded, Mr. Fenton spent his spare time writing a forty-seven page paper which outlined plans for a sequential and cumulative curriculum for able high school students in the Pittsburgh Public Schools. This paper became our original rationale. Its deficiencies far exceed its merits, although it was a good start. The necessity to produce materials for classes in September made it impossible to work further on the rationale after our project was funded in May, 1963. Instead we asked Professors March and Coleman to develop very short rationales for the first two courses in the sequence. These papers raised important questions about the entire curriculum, questions with which we wrestled for a year. Copies of speeches and staff papers in our files record a steadily developing conception of what we were about.

In an attempt to explain what we were doing to cooperating teachers, Mr. Fenton decided to collect materials from social studies projects and make a methods book out of them by connecting one to the other with introductions and study questions. Work on this volume began in 1964; published in 1966, it was entitled Teaching the New Social Studies in Secondary Schools: An Inductive Approach (Holt, Rinehart and Winston Inc.). Writing the book helped our staff develop its rationale. In the fall of 1964, we wrote an "Introduction to the Teacher's Manual" which contained a 6,500-word account of our rationale as we then understood it. Short rationales for each new course in the series further sharpened our perspective. So did papers circulated at Carnegie among the small group intimately involved in the project. The opportunity to make speeches about our work and the challenge of questions from the audience stimulated us further, particularly at a Curriculum Seminar held to analyze the Carnegie material at Washington University. The necessity to teach our material to students every day forced us to test our theories in the cold reality of the classroom. Participants in our NDEA institutes and Experienced Teacher Fellowship Programs challenged us on a number of points. Finally, Mr. Fenton took a leave during the 1965-1966 academic year to study the curriculum reform projects and write a little book entitled The New Social Studies (Holt, Rinehart and Winston, Inc., 1967). Now at the end of our project, we are able to write a sophisticated rationale pulling together all the bits and pieces of our work.

Would we have been better off if we had started our project with the rationale we now have? Certainly we would. But it would have been impossible to develop this rationale without going through the four years of labor we have just finished. Our rationale has grown out of widespread reading, the process of writing materials, the actual experience of the classroom, and the opportunity to see what other projects were doing. But we would have been better off if we had been able to devote more time to our rationale before we began to write.

Our final major mistake involves our evaluation as the third section of this Report will make clear in detail. We divided 463 able students in the Pittsburgh Schools into two groups, experimental and control. We then administered a variety of tests for content and for critical thinking skills. Our students scored near the top of the continuum. Moreover, we decided that some of our major objectives could not be tested by any published evaluating instruments we could find. We had to write our own tests. Because our funds and our staff were limited, we were never able to develop evaluating instruments for the affective domain, which comprises a substantial part of what we were trying to do. Although the results we have obtained are most promising, our tests for ability to use a mode of inquiry for the social studies are only preliminary versions. We are dissatisfied with substantial parts of our evaluation. Since we were involved in a major research project on which more than a third-of-a-million dollars of public funds have been expended, it is obvious that we made a serious error in this direction.

Recommendations for Future Curriculum Projects

If we had the project to do over again, we would amend our proposal so that it contained the following features:

1. We would propose to develop two years of curriculum in four-and-one-half year's time. We would spend the first half-year developing a rationale, defining objectives carefully, and sketching outlines for both years, paying close attention throughout the process to the courses which should precede and follow the ones we were designing. During our first year, we would write and test our first course on a small scale. We would revise as we tested and finish our revision during the following summer. During our second year, we would field test the revised version of the course and make any necessary revisions in preparation for publication. During our third year we would write and test our second course on a small scale, revise and field test it the following summer and academic year, and publish at the end of the four-and-one-half year period.

2. We would have six permanent staff members each of whom would devote at least three-quarters of his time to the project. Only the administrative assistant, who would be in charge of the budget, drafting reports, duplicating materials, and the routine work of an office, would not actually teach one or more courses. The other five members of the staff would all teach either all of the courses or some of them in the schools. Only in the teaching process can a writer learn the true dimensions of a curriculum project. All five of these people would be expected to do all of the jobs in the project, but each one would take major responsibility for a part of it: one for the development of written course materials, one for the audio-visual component, one for school trials, one for evaluation, and one for dissemination. We would not use part-time writers because, as both our project and the projects supported by the National Science Foundation have learned, much of what they produce cannot be used in the classroom. We would, however, utilize scholars outside the permanent staff to suggest materials and review staff work.

3. We would develop a more sophisticated rationale during the first months of work as we have already indicated. In addition to an overall rationale, we would write a shorter rationale, perhaps ten pages, for each individual course. We would examine our rationale carefully and invite criticism from scholars outside the project before we began to write materials. Finally, we would link the rationale closely to an evaluation.

4. We would ask for more money, perhaps four times as much per course as we had. A permanent staff of six, along with the other people we need and money to produce materials, would cost about $150,000 per year. Producing and testing two courses in four years would cost about $600,000. We produced four courses in four years for $340,000. We cannot, however, find a valid reason to spend a million or so dollars on a few units or a single course as the three projects supported by

the National Science Foundation have done. Much of that money has gone to pay social scientists from universities to write units which have failed in the classroom or to support a vast field test costing in at least one instance as much as our total original budget.

5. We would work closely with editors from a professional publishing house from the inception of the project. Professional publishers have a know-how which is extremely useful to people on curriculum projects. Having a publisher associated with the project would improve the quality of the final product and and get it into the hands of students much more rapidly than if a publisher were brought in late in the game.

Despite our horrendous list of mistakes, despite all our "what we should have dones," we still feel that we have produced a meritorious curriculum. We expect a revised version of our materials to have a marked impact on education in the social studies. Holt, Rinehart and Winston has published four of our revised courses: _Comparative Political Systems_, _Comparative Economic Systems_, _The Shaping of Western Society_, and _From Tradition to Change in Four Societies_. _A New History of the United States_, _An Introduction to Behavioral Science_, and _The Humanities in Their Social Settings_ will be published in August, 1969. Only after these materials have sought their place on the competitive market can we assess the full impact of our efforts.

Curriculum development is no work for amateurs. Social scientists from universities often turn out unworkable units because they tend to write for other scholars, they do not know learning theory, and they have not faced elementary or high school students for a full daily schedule over a sustained period of time. In addition, many scholars who have had no contact with educational literature have narrow objectives--to produce children who know a discipline well--rather than the sort of broad and more appropriate objectives which are described in the second section of this _Report_. Moreover, a series of units written by different scholars seldom combine into a course, never mind an integrated curriculum covering several years of work, without major overhauling. Nor can typical classroom teachers write curriculum well. They lack preparation as professional writers, as scholars on the frontier of a discipline, and as experts in learning theory. Curriculum development is a new academic specialty.

The curriculum projects have now trained several hundred of these new specialists. Their skills may be wasted, however. Instead of earmarking additional money for social studies curriculum projects, the government has made large grants for education to states or groups of schools to use with comparatively few restrictions. Little if any of these funds will make their way into the sort of curriculum project which a number of universities can now organize well. Instead much of this money will probably end up in the hands of committees of teachers on the local, state, or regional level to develop courses of study like those which have failed so conspicuously in the past. Categorical aid earmarked for curriculum research should again become a significant part of the total effort of the United States Office of Education to upgrade teaching in the social studies. Without excellent materials and carefully prepared teaching strategies related integrally to objectives and planned in keeping with a sound rationale, curriculum work will be relatively ineffective.

Conscientious curriculum work requires years of effort. A curriculum consists of more than a collection of units or an individual course for a semester or a year. A curriculum project should develop a carefully articulated series of courses for several years of study in which each course carefully contributes to overall goals, builds upon previous learning, and prepares students for work in future courses. In isolation, a twelfth grade economics course, a tenth grade geography course, or units in anthropology or sociology for use at any level in the secondary schools do not constitute a curriculum. Courses or units like these can only provide materials out of which a curriculum can be built. Given the work ways of teachers described earlier in this section, the likelihood of a distinguished cumulative curriculum firmly based on the needs of the society, the needs of children, and sound learning theory developing from miscellaneous courses or units seems minute. Many of the contemporary social studies curriculum projects do not even have a rationale to explain why they think a certain subject should be taught to particular students at a certain grade level. Only curriculum specialists working closely with scholars from the disciplines on projects which will require many years to complete can produce the sorts of curricula which students in American schools deserve.

CHAPTER II
THE CARNEGIE PROJECT

The Rationale

The rationale which follows represents our present thinking based upon our experience. We began to plan a curriculum design well before our project was funded in May, 1963. Parts of the rationale --for example, the sequential arrangement of courses--have remained unchanged since the Carnegie staff first began to talk seriously with teachers from the Pittsburgh Public Schools about a major curriculum project in 1962. Other parts of the rationale--our classification of concepts is one example--developed relatively late. We can see no particular utility for an historical account of the way in which our rationale developed. Instead of tracing its evolution, we have decided as part of our Final Report to describe our rationale for a social studies curriculum for able American high school students as it now exists and to illustrate our points with specific references to our material and our experiences.

Although the revised version of our public domain materials now being published by Holt, Rinehart and Winston, Inc. rests in part upon this rationale, the complete curriculum design does not apply. We have thoroughly revised our project materials for Holt in order to adapt them for the use of typical students. The project supported by the Cooperative Research Bureau of the United States Office of Education, however, stipulated a curriculum for able students. The rationale which follows applies to this student audience.

We defined able students as the top twenty percent of the ability range in typical American high schools. These students generally have IQ scores higher than 115. They read well, often two or three grade levels above typical students of the same age. They handle abstract ideas much better than students less well endowed intellectually. A majority of them are well motivated and ambitious and come from families which are anxious to have them succeed academically, although a number of able students with whom we worked lacked such fortunate environments. Most of them are college-bound, in many cases for the more demanding colleges and universities. Many should become future leaders of the society, the country's senators, mayors, business executives, union leaders, writers, PTA presidents, and teachers. We tried to design a curriculum for these students which took their attributes and aspirations into account.

A curriculum designed specifically to meet the needs of able students must be based on ability grouping. If each student is to grow intellectually to the limit of his abilities, he must read materials which challenge him and discuss issues which stretch his conceptual framework. Typical courses are too easy for able students who coast through them. Given the practical situation which social studies teachers face--five classes a day averaging more than thirty students per class as well as numerous additional duties--only a creative genius with the patience of a saint and the constitution of an olympic athlete can plan individual programs of study to challenge each of his able students. Moreover, although we have found no research data on this subject, we believe that our affective objectives cannot be attained through the use of computer-assisted instruction by which it may some day be possible to provide individualized programs of study for senior high school students.

In all other academic areas except the social studies and less frequently English, American high school students eventually group themselves roughly by ability and aspiration. If they lack either interest or ability, students drop out of the mathematics, science, and modern language sequences as soon as the required courses for the college of their choice have been completed. Not so in the social studies. In most schools, counselors lump students of all abilities heterogeneously in social studies classes, usually on the grounds that children ought to learn somewhere about others who are different from themselves. Social studies, which have been traditionally responsible for the education of citizens, has hence fallen prey to heterogeneous grouping, but without sound philosophical support for the practice.

A good citizen needs knowledge, inquiry skills, sound attitudes and democratic values. Teachers in all subject areas share responsibility for teaching the skills of inquiry. Similarly, all teachers should attempt to develop such attitudes as willingness to participate and preference for a scientific proof process upon which excellent citizenship in a democracy depends. Teachers of literature should be as responsible for helping each student to develop his own value system as instructors in social studies. Only knowledge about government and the society of which it is a part falls exclusively within the province of the social studies. No one has yet proved that this knowledge can be transmitted only to students who are heterogeneously grouped. The advantages of ability grouping in social studies, particularly the possibility of stretching each able student to the limit of his ability, far outweigh the supposed defects of this practice. *

The overall objective of our curriculum is to help each student develop to the limit of his ability into an independent thinker and an informed, responsible citizen of a democratic society. We divided this general objective--far too sweeping and abstract to be a useful guide to instruction--into four major parts: attitudes, values, inquiry skills, and knowledge. These four categories of objectives cannot be divided in practice. Students cannot inquire about nothing; there must be content to inquire about. Without attitudes predisposing them to prefer a scientific mode of inquiry, they cannot inquire at all. Values in turn grow out of knowledge, attitudes, and inquiry skills. Yet, although we recognize that these four sets of objectives are interrelated, we believe that clarity results from discussing them separately.

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* Under the leadership of two distinguished superintendents, Calvin Gross and Sidney P. Marland, the Pittsburgh Public Schools decided in 1961 to inaugurate a new program for able students to be called the Pittsburgh Scholars' Program. Beginning in 1963, able students from all over the city were clustered into fifteen junior high schools or eight-year elementary schools and into seven of the city's twelve senior high schools. A total of about 700 students per grade level were involved. The able students who became ninth graders in 1963 made up a pool from which project officials and school counselors were able to make up matched experimental and control groups of 230 students each. With our student audience chosen, the climate for a cooperative venture well established, (Mr. Fenton had spent two years on three-quarters time leave from Carnegie to help plan the Pittsburgh Scholars' Program), and eight classes of able students identified in five different schools as members of our experimental group, we were ready to proceed.

An independent thinker and an informed, responsible citizen has attitudes which predispose him toward a useful and cooperative role in a democratic society. He believes, for example, that a citizen should participate actively in the political process. He is willing to listen to all sides of an argument in order to make up his mind according to a scientific proof process rather than depend on emotion or authority for his ideas. He wants to continue to learn once he has left the classroom since good citizenship, as well as a rich cultural life, depend upon willingness and ability to assimilate new information. Our curriculum carefully tries to encourage these attitudes primarily by the way in which classes are conducted.

Substantive values are another matter. Our curriculum does accept a basic ethic: the dignity and worth of the individual. But the curriculum does not attempt to instill in students a particular set of values or to enlist their support for particular public policies which follow logically from a predetermined value system. The value systems of American taxpayers who send their children to the public schools vary from one end of the spectrum to the other. In a democracy parents have a right to mold the values of their children; teachers should not relegate this right to themselves.

On the other hand, teachers and the curriculum they use should consistently call upon students to reflect upon their substantive values. More than a quibble separates the difference between teaching a value as truth and raising an issue involving a value to encourage reflection and clarification. Discussing a value in class without trying to arrive at consensus challenges each student to think for himself and to reflect upon the validity of values which he has learned in the home, the playground, or the wider community. Using this technique, each child can develop his unique value system. This expectation seems well within the responsibility given to teachers by the society.

Our curriculum raises questions of values consistently. For example, the first four days of the ninth grade course in Comparative Economic Systems examines the values of Kwakiutl Indians, Americans in Middletown, and contemporary leaders of the Soviet Union. Students are then asked to determine the characteristics of a "good economy" according to these three conflicting sets of values. Throughout the course when questions of public policy are under discussion, value issues enter in a similar way. Any decision about the allocation of scarce resources involves values. The curriculum makes this point clear and consistently confronts students with value dilemmas stemming from economic problems involving resource allocation.

The Shaping of Western Society, the course for the first semester of the tenth grade, approaches values in three ways. First, it examines the value systems of men throughout European history in order to introduce students to a wide range of values from which they may pick and choose. Second, it examines the relationships of values to the societies out of which these values grew, thus teaching students to examine the role of values in an entire culture. Finally, it gives students opportunities to reflect about whether particular values from past societies are pertinent to their own lives. The eleventh grade course in American history approaches values in these same three ways.

Studies in the Non-Western World, taught during the second semester of the tenth grade, has a somewhat different focus. It is organized around four one-month studies: totalitarianism in China, economic growth in India, and race relations in South Africa and Brazil. Each unit includes a careful study of the traditional values of the area, a study which increases the number of value alternatives open to students. The units also examine the challenge to traditional values by ideas and institutions diffused from the West. Finally, and most important, each of the four units examines the value issues involved in a modern problem such as totalitarian government, economic growth, or race relations. These problems seem certain to persist throughout the adult life of present high school students. Studying the value issues which lie behind them should help to prepare students for responsible and informed citizenship.

While the Introduction to Behavioral Science, which is taught during the first semester of the senior year, is primarily concerned with methods of inquiry in behavioral science, it too has affective goals. Perhaps the most important of these aims is to develop in students a cautious, critical attitude toward generalizations about human behavior, whatever their source. Through readings and through designing and conducting their own behavioral research, students acquire a deeper understanding of the great complexity of human behavior and the great difficulty of acquiring verified knowledge about it.

The last semester in the curriculum, a course in the humanities, stresses affective goals. The course centers around three major questions: What is the good man? What is the good life? and What is the good society? For substantive material we have chosen the civilization of Ancient Athens, Renaissance Florence, and modern New York. Students examine answers given to these three basic questions by men in each of these civilizations. Virtually every lesson plan challenges each student to think about the implications of these answers in the light of his own conception of the nature of man. Each student keeps an intellectual diary throughout the course. As a culminating experience, he either writes a paper or produces a photo essay about his conception of good man, good life, or good society. This course, building upon affective issues which have been introduced four years before, helps each student make explicit a coherent value system around which he can build a fruitful and satisfying life.

Our third major set of objectives stresses the ability to use a mode of inquiry for the social studies. In a world where the total knowledge of mankind doubles each decade, a student who has not mastered inquiry skills may well find himself on the human scrap heap ten years after he leaves school. Cramming facts and generalizations from a textbook into his head cannot meet the challenge of the knowledge explosion. Unless a student can inquire independently of the questions which teachers use to cue him, he is not equipped to be an independent thinker and a responsible citizen of a democracy.

We have identified six major steps in a process of inquiry for the social studies. They are as follows:

A Mode of Inquiry for the Social Studies

1. Recognizing a problem from data
2. Formulating hypotheses
    - Asking analytical questions
    - Stating hypotheses
    - Remaining aware of the tentative nature of hypotheses
3. Recognizing the logical implications of hypotheses
4. Gathering data
    - Deciding what data will be needed
    - Selecting or rejecting sources on the basis of their relevance to hypotheses
5. Analyzing, evaluating and interpreting data
    - Selecting relevant data from the sources
    - Evaluating the sources
        - Determining the frame of reference of the author of a source
        - Determining the accuracy of statements of fact
    - Interpreting the data
6. Evaluating the hypothesis in the light of the data
    - Modifying the hypothesis, if necessary
        - Rejecting a logical implication unsupported by data
        - Restating the hypothesis
    - Stating a generalization

In the way in which we use the term the method (or mode) of inquiry is synonymous with what some other workers mean by the structure of a discipline. We have adopted Joseph J. Schwab's definition of structure. ** Schwab argues that a discipline's structure has two parts: "the body of imposed conceptions which define the investigated subject matter and control its inquiries" and "the pattern of its procedure, its method, how it goes about using its

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** Joseph J. Schwab, "The Concept of the Structure of a Discipline," The Educational Record, V. 43 (July, 1962), 199, 203.

conceptions to attain its goals." In other words, the structure of a discipline consists of a method of inquiry made up of two parts, the imposed conceptions which guide the development of hypotheses and the procedures used to validate these hypotheses. The Carnegie group has paid particular attention to the first of these two parts, the development of hypotheses.

The way in which a person selects facts to note or remember largely determines the kinds of hypotheses he forms. Facts mean nothing by themselves. They assume meaning only in the mind of a person who learns them. The same fact may mean quite different things to two persons with different views of the world. Hence, each person's "body of imposed conceptions" conditions him to ask different questions and to interpret the meaning of the same piece of evidence in different ways. The pedagogical problem is to broaden a student's conceptual scheme so that his "imposed conceptions" will be likely to yield more fruitful hypotheses which can help him solve problems in the social studies. The Carnegie group has identified the hypothesis-making aspect of structure with analytical concepts such as leadership, role, or resources.

Although we have discovered no research data to support our position, we believe that ability to use questions associated with analytical concepts from the social sciences correlates highly with creative achievements in a field like American history. The new history written by the most exciting young scholars has grown out of new questions put to documents which many scholars have mined thoroughly before. The questions are new; the facts are not. For these men, creativity may be defined behaviorally as the ability to ask the kinds of questions which guide the search through data to original conclusions. Our curriculum tries to teach students some useful questions to ask; more important, it tries to teach them always to ask questions--to think hypothetically. This process, rather than discovery exercises whose success depends upon the presence of a built-in conceptual framework, is likely to produce a generation of students who are able to think creatively about society.

During the past five years, at least thirty volumes have been written about the role of concepts and structure in the social studies. We have read this literature carefully. Much of it jumbles different types of concepts into single lists. During the last year of our work, we classified concepts into different types and examined their use in curricular construction. The model we present below grew out of our curricular work and reflects the organizational pattern of the ninth, tenth, and eleventh grade courses.

We have identified six types of concepts involved in the social studies. We have called the first type universal concepts: culture, society, or civilization. These three terms are really synonyms. They are not particularly useful tools for students because they encompass too much. None of the three guides the search for data because each includes everything about man at a particular time and place. Yet a student should know that all men live in a culture and he should be able to analyze that culture scientifically.

The necessity to divide universal concepts like culture, society, or civilization for purposes of analysis suggests a second group of concepts. For want of a better term, we have called them macro-concepts - four of which are particularly important: economic system, government, social structure, and region. They parallel four academic disciplines: economics, political science, sociology-anthropology, and geography. A culture, society, or civilization can be studied by examining each of these subdivisions using the tools which specialists in each discipline have developed. But these macro-concepts suffer from the same deficiency as the universal concepts: they do not guide the search for data because each one includes too much.

Macro-concepts can be subdivided by types. For example, we can classify political systems as traditional, totalitarian, democratic, authoritarian, parliamentary and so forth. Economic systems, social structures, and geographic regions can be classified in a similar fashion. Although these subdivisions are useful for comparative purposes, they are still too broad to provide effective guides through data.

Our third category, analytical concepts, do guide the search for data effectively. An analytical concept is one which is useful for the analysis of a culture at any time or place. Analytical concepts guide the search for data because they tell the student what to look for as he reads. We have identified the following analytical concepts as a useful starting place for students to learn to develop hypotheses about cultures. These concepts are: ***

Mainly from Political Science	Mainly from Economics	Mainly from Sociology and Anthropology
Leadership	Values and goals	Role
Decision making	Scarcity and choices	Status
Institutions	Resources	Norms
Ideology	Price	Social Class
Citizenship	Distribution	Groups
	Production	Group interaction
	Economic growth	Culture change

*** Note that we have not included analytical concepts from geography under the macro-concept region. Our curriculum nowhere stresses this area of social science, partly because no one on our staff was a sufficiently skilled geographer. This omission, we believe, is a shortcoming of our curriculum. We have, however, tentatively identified analytical concepts coming from geography. They are aereal distribution, aereal association, and aereal interaction.

We do not contend that our list is the only useful one. Another group of investigators might turn up with another list of nineteen or twenty-five or fifty concepts which is equally useful. There is no single structure to the social studies. Each person brings his own structure--his own "body of imposed conceptions"--to any investigation. Rather than claim to have discovered "the" structure of the social studies, we are prepared to make a more limited argument: the list of concepts we teach students to learn and to use is likely to lead to hypotheses which both social scientists and students would agree are useful for the investigation of societies past and present. Beyond this claim we do not wish to go at this stage of our research.

Each of these analytical concepts implies questions. Take leadership as an example. Modern political scientists know that leaders play a particularly vital role in any political system. They want to know a number of questions about a society's political leadership. Who are the leaders? What are their attributes? How do they gain and maintain support? How can a citizen get access to them? Once the student knows a concept like leadership and has learned analytical questions associated with it, he is prepared to embark on a search through data with a powerful conceptual scheme in mind. If he knows the concepts we have identified and the battery of analytical questions associated with them, he is still better prepared. Most of all, if he has learned to ask questions--a process which we teach almost daily--he will have developed the habit of thinking hypothetically. This habit is the most important of all. More than anything else it distinguishes the independent, creative thinker from the hack who simply compiles data outside of a disciplined conceptual scheme.

The full list of analytical questions associated with concepts may clarify the scheme we have developed. Some analytical questions are themselves interrogative statements of sub-concepts. (What technology is employed in production? How is gross national product related to consumption, investment, and government expenditures?) Without seeing our list of primary analytical questions, a scholar cannot know whether or not we have overlooked basic aspects of a discipline. The questions associated with each of the nineteen concepts which follow have been carefully programmed into the materials of instruction in the ninth and tenth grade courses. The eleventh grade course uses all of these questions as the basis of inquiry.

A. Stressed First in Comparative Political Systems
   1. Leadership - That position in society having the authority to determine how the power of government will be used.
      a. Who are the leaders? What are their personal characteristics? Their social backgrounds?
      b. How does society recruit its leaders? How does it persuade people to accept leadership positions? What formal and informal rules does the society establish for granting leadership?

    c. What must a person do to obtain and keep a leadership position? To whom does he appeal? How does he appeal to these people? How does he maintain support?

2. Decision Making - The process by which a political system determines for what purposes governmental power will be exercised.
    a. What are the formal rules for making decisions? The informal rules?
    b. In what leaders and institutions does decision-making power reside?
    c. What factors influence decision-making? How does ideology influence it? The personal attributes of leaders? Institutions? The desires of citizens?
    d. How does information flow to the decision makers? What influence does it have?
    e. How are decisions carried into effect? What sanctions are used to enforce decisions?
3. Institutions - Organizations and well-established practices which distribute authority to make decisions about how power shall be used.
    a. What are the institutions of a society? What functions does each institution have?
    b. What official authority has been given to an institution? What authority has an institution accumulated informally?
    c. How do institutions influence decisions?
4. Citizenship - The rights of individuals to influence how societal power will be used, their obligations to submit to governmental power, and the process by which they accomplish these two functions.
    a. How does a citizen influence how public power is used? Does he have a role in the decision-making process? How does he obtain access to decision-makers? What influence does he have over them?
    b. How does a citizen get information about government?
    c. How does government affect the life of the citizen? How does it restrict his freedom? How does it enlarge his freedom?
5. Ideology - The body of ideas and beliefs to which the people of a society subscribe.
    a. What are the basic beliefs about man and society shared by most people in the society? What are the sources of those beliefs?
    b. What values do the members of a society hold?
    c. What influence does ideology have on decisions about how power should be used? Do political decisions attempt to promote the goals and values of the people in a society?

B. Stressed first in Comparative Economic Systems
  6. Values and Goals - The aspirations, standards, or long-range common objectives which a society holds to be good.
    a. What are the major values and goals of the society?
    b. How do values and goals affect economic decisions?
    c. How are conflicts in values and goals resolved?
  7. Scarcity + Choices - The idea that since resources are limited and wants are infinite, society must constantly allocate resources among competing goals.
    a. What goods and services does the society make with its resources? (What)
    b. How does the society use resources to make goods? (How)
    c. How are goods and services distributed? (For Whom)
    d. How does a society choose between using resources for present needs (consumption) and using them for increased productivity in the future (growth)?
  8. Resources - The supply of raw materials, capital, and human skills available to a society.
    a. What natural resources are available?
    b. What human resources are available?
    c. What capital resources are available?
    d. How are the three types of resources combined to produce goods?
  9. Price - The amount of money needed to purchase a particular economic good or service.
    a. How are prices set in an economic system?
    b. What are the functions of prices in the system?
  10. Distribution - The process by which goods and services are distributed.
    a. How are goods distributed? What economic institutions are involved?
    b. In what proportion do the various factors of production receive goods?
    c. How is the pattern of distribution related to values and ideology?
  11. Production - The process through which goods and services are made or supplied.
    a. In what ratio are three types of resources combined to produce goods?
    b. What economic institutions influence production?
    c. What technology is employed in production?
    d. What is the nature of the entrepreneurial function?
  12. Business Cycles - The rise and fall of economic welfare and activity in a society.
    a. What causes business cycles?
    b. What are the social consequences of depressions or severe inflation?

c. What can be done to control business cycles? How is gross national product related to consumption, investment, and government expenditures?

C. Stressed First in The Shaping of Western Society and Studies in the Non-Western World

13. Role - The functions and activities society expects individuals with specific characteristics to perform.
    a. How are roles assigned by society?
    b. What does society expect of individuals who have certain roles?
    c. What different roles is a particular individual expected to fulfill?
    d. How can an individual prepare himself for a particular role? Are some roles closed off to certain individuals?
14. Status - The position given a role relative to other roles.
    a. Which roles are given high status by the society?
    b. What privileges are given to roles with high status? Are they given more wealth? more freedom? more power?
    c. Is status inherited or is it earned in the society?
15. Norms - The standards of behavior in social relationships expected from different roles.
    a. What are the most important norms of the society? (mores)
    b. What are relatively unimportant norms? (folkways)
    c. What are the norms of behavior assigned to given roles?
    d. What sanctions are applied when someone violates a norm?
16. Social Class - A large group of people who share many things in common and who are classified by other members of the community as belonging together.
    a. What are the classes of a given community? What criteria are used to place people in a class?
    b. Can someone earn membership in a given social class, or must a person be born into it? How open are classes to people born outside them?
    c. How are classes arranged in the social structure? What roles are assigned to the upper classes? The middle classes? The lower?
17. Groups - A cluster of two or more people who interact because they have some common characteristic or purpose.
    a. What kinds of groups exist in a society? What identifies people as members of a group?

b. What are the most important primary groups (such as family, play group, or neighborhood group) characterized by intimate, personal relationships among members?
c. What are the most important secondary groups (such as a labor union, political party, or business firm) characterized by non-personal relationships among members?
d. How does membership in a group influence the behavior of its members? The structure of the society?

18. Group Interaction - The process by which groups in contact influence each other.
    a. Are particular groups in contact with each other basically cooperative or competitive?
    b. When two ethnic or racial groups interact, what determines which of the following four processes will take place: extermination, accommodation, assimilation, or amalgamation?
19. Culture Change - The process by which a culture adjusts to new circumstances or a new environment.
    a. Has a new invention promoted culture change? If so, in what way?
    b. Has diffusion from an outside source produced change? If so, how? What was the agent of diffusion?
    c. Has a change in one area of a culture (technology) produced a condition demanding change in another area (family structure)? Has there been a lag between the first change and the second?

In addition to universal concepts, macro-concepts, and analytical concepts implying questions, we have also identified a number of procedural concepts having to do with the way in which social scientists and historians inquire. The most important procedural concepts are as follows:

1. Social Studies question - A question which can be answered by the use of a method of inquiry for social studies. "Did Christ live?" is such a question. "Was Christ divine?" is not.
2. Hypothesis - A tentative explanation for an event posed as a part of the inquiry process.
3. Fact - A statement about a person, event, etc. which meets the tests for historical credibility.
4. Data - Any information about past or present society.
5. Evidence - Data which has a bearing on a hypothesis under investigation.
6. Frame of reference - (also bias or point of view)- The way in which a person's entire life experience has conditioned him to look upon the world.

7. Generalization - A statement about past or present society which explains two or more facts and meets the tests imposed by a method of inquiry.
8. Theory - A generalization so well documented and accepted that a piece of evidence which seems to contradict it is assumed wrong until another more encompassing theory can be developed to explain both the old and the new evidence.
9. Concept - A category of things or qualities which can be defined and is useful as a basis of a classification system.

Our curriculum teaches students the meaning of these concepts and introduces them to their use in investigations in the social studies.

Our curriculum also introduces students to two additional types of concepts which have special applicability to historical study. The first, historical periods or topics, is relatively simple. Students learn the utility of terms like the Renaissance or the Middle Ages, and also the dangers of such all-embracing ideas. The other types of concept--historical definitions--recur throughout the history courses. Words like democracy, feudalism, communism, and nationalism have changed their meanings over time. We teach students to use words like these carefully, defining them not only for their general meaning, but also by the way in which they were used specifically in a particular time and place.

Analytical questions stemming from analytical concepts clustered under four macro-concepts hold the key to hypothesis-making. In this area, the work of our project, although it clearly grows out of the ideas of other scholars, seems original in the way it has reorganized and synthesized ideas. Our attention to the proof process of the social studies is less original. As our mode of inquiry indicates, we have identified four steps in the process of proof. Throughout the four years of our curriculum we have tried to teach each of these steps over and over again in individual lessons. Occasionally we challenge students to pull the entire proof process together on one day. Discovery exercises and research papers have proved to be useful ways in which teachers can evaluate the skills with which their students have mastered this intricate and complicated process.

Our fourth group of objectives stresses knowledge of content. We use four criteria to select content. First, we have chosen materials which will help students learn the concepts essential for the mode of inquiry which we teach. Three of our first four courses have been placed early in the curriculum partly for this reason. Since much of our instruction is based on the use of a mode of inquiry, students must learn concepts before they can become involved in sophisticated historical analysis. Without them they cannot ask the sorts of questions essential to analyzing changes over time.

Secondly, we have chosen content to fit the interests and needs of adolescents in American society. A large number of our assignments reach within the life of the child. In the humanities course, for example, we present the words of seven popular and folk songs as well as a collection of graffiti from the walls of New York coffee houses in order to challenge students to articulate the conceptions of good man, good life, and good society which come out of adolescent culture. Many other assignments similarly touch the interests of adolescents.

Our entire curriculum is aimed at the needs of these children. They are able college-bound students. In order to get into college, they must be able to pass the College Board Examinations. Our curriculum equips them to do so. They must also learn to do the kind of independent work demanded by college professors. Our curriculum develops the required attitudes and skills. To live successfully on modern campuses, they need a coherent value system to act as an anchor in a storm-tossed world. The humanities course, which culminates our work with affective domain, is designed to provide such an anchor. This close attention to the needs of students has been an integral part of our thought.

A third criterion for the selection of content is the need to accumulate knowledge about contemporary governmental, economic, and social problems. The analytical concepts we teach provide tools with which to begin an analysis of any problems in these three areas. Because no one knows what problems will be paramount in the society ten or twenty years hence, we believe that the ability to use the tools of inquiry are the best possible preparation for citizenship. But even if we had wanted to do so, we could not have escaped the necessity to choose specific materials to study from each of these three macro-areas. In political science, we selected the contest between totalitarian and democratic governmental systems, in economics, the rivalry of market and command systems, and in social structure, the struggle to attain human equality throughout the world.

Each of these major problem areas may be divided into more specific sub-problems. Take the struggle for human equality, for example. The ninth grade course in political science investigates voting patterns among American minority groups, patterns of leadership in American government, the protection of civil rights and civil liberties by laws and court decisions, and similar issues. The course in comparative economics examines the ways in which goods and services are distributed to members of various racial and ethnic groups. In addition to many individual lessons, The Shaping of Western Society devotes a week's study to the development of the idea of equality in the Western world beginning with the Greeks. During the second semester of tenth grade, students study the social structures of the Republic of South Africa and Brazil in order to learn about contrasting arrangements of relationships between races: apartheid in the Republic of South Africa and racial amalgamation in Brazil. The eleventh grade course includes studies of the role of the Negro and the immigrant in American life. Finally, the humanities course in twelfth grade examines as one dimension of the good society the attempts of Athens, Florence, and New York City to assure equal treatment to all their citizens. We can spell out similar developmental threads for the other two major contemporary problems around which our curriculum focuses.

Our final criterion for the selection of content involves knowledge of present and past societies. Able students particularly need three kinds of knowledge. First, they need to know those facts and generalizations which will help them get high scores on College Board Examinations. Although we were not in sympathy with this criterion, we felt compelled to acknowledge it if we expected schools to adopt the curriculum we were developing. As a matter of fact, this criterion did not fundamentally get in our way as section III of this Report will indicate. More important to us philosophically was a commitment to two other criteria for the selection of content.

The first of these was a desire to have students know the information they needed in order to become excellent citizens in a democracy. This criterion implied a knowledge of governmental institutions in the United States and in other nations. It implied knowledge of political process. It implied knowledge of the American economy which could help students as voters to choose one policy instead of another. It also involved knowledge of American social structure which becomes so fundamental a part of a citizen's life once he becomes active in a community.

Finally, we chose a body of knowledge which would help students to live a more fruitful life in an affluent democratic society. As the amount of leisure time grows, the schools should help students learn how to spend it constructively. Our curriculum teaches students to walk through a museum intelligently, to look at a play with more than the outcome of the plot in mind, and to become well enough acquainted with key historical figures that they can read history or fiction with genuine understanding.

An example may make our point clear. Rather than skim through the entire history of mankind in our humanities course, we concentrated on three great epochs, Ancient Athens, Renaissance Florence, and contemporary New York. Students study great men, the great ideas, the great works from these three periods. The close attention we give to the implications of individual plays, poetry, short stories, novels, essays, and descriptive accounts help students learn a process of analysis which they can apply to other works. All of these experiences should increase students' humanistic understanding and help them to lead happier lives amid the abundant opportunities of American society.

The objectives we have been describing are all stated in general terms. It was impossible to state in advance detailed objectives for the entire curriculum. Such a task would have required several years of careful planning and many hundreds of pages of writing, and would have needed revision anyway as the curriculum evolved. Instead of listing each detailed objective in advance, we decided to choose four clusters of general objectives and then choose specific behaviorally stated objectives for each lesson throughout the entire four years of curriculum as we developed our lesson plans. If we wished to, we could now accumulate this entire list of objectives as a statement of what our students should have learned.

The way in which our curriculum was written would make it extremely difficult to begin with an extensive and elaborate list of behavioral objectives. Many of our readings have been edited from previously published sources. To a degree the way in which we stated specific knowledge objectives for each day was determined by the data in each reading. Similarly, the inquiry skills for a particular day were influenced by the kind of data and thought process discovered there. Similar generalizations hold for attitudes and values. Having in mind our range of objectives in general terms and stating objectives behaviorally for each day's lesson as we went along has seemed to us a practical substitute for the process of stating thousands of specific behavioral goals at the beginning of the development of a four-year curriculum.

Two factors--our objectives and the realities of the school--conditioned the order of courses in our curriculum. Because we want students to learn a conceptual apparatus from the social sciences, we begin our curriculum with courses which compare political and economic systems. Students learn to analyze the governments and economies of primitive societies, the United States, and the Soviet Union. Logically, we should begin the sophomore year with a course in which students learn a conceptual scheme from sociology and anthropology. However, the tenth grade has been traditionally reserved for world history. Our course entitled Studies in the Non-Western World emphasizes a conceptual scheme from sociology and anthropology essential to the analysis of a culture. But analysis of the non-Western world should follow a study of the West because the impact of the West has had such a profound effect on the non-Western world in the twentieth century. Hence, we choose to begin the tenth grade with a semester's course in European history, inserting particular lessons in the early units of the course to introduce key analytical concepts from sociology. The course focuses on the development of European political, economic, social, and intellectual trends.

The second semester of the tenth grade consists of four studies in the non-Western world. During the last summer of the life of our project, two additional non-Western units have been written. Each of the original four units investigates the organization of a traditional non-Western or derivative society, looks at the way in which Western ideas and institutions were diffused, and then focuses upon one particular contemporary problem in each area. In China we concentrate upon government, in India upon economic growth, and in South Africa and Brazil upon race relations. We chose these topics because they were germane to the areas, because they assured sequential and cumulative learning, and because they are vital modern problems about which we thought our students should have some background knowledge.

The eleventh grade course contains a full year's examination of the history of the United States designed partly to prepare students to take the Advanced Placement Examination. This course is built around twelve published books, but the continuity of the curriculum remains. The course stresses the development of American political, economic, social, and intellectual traditions. Our criteria for the selection of content continued to govern what we taught. Our emphases upon inquiry skills and upon affective objectives remain dominant.

The senior year is organized around two electives, an introduction to behavioral science and a course in the humanities. The primary objective of the behavioral science course is to explore the idea that human behavior is an appropriate subject for scientific study. Scientific approaches to the study of behavior are compared with non-scientific sources of knowledge and belief. Through experiments, demonstrations and readings, students acquire familiarity with methods of inquiry in the behavioral sciences and with the nature of scientific evidence in general. The humanities course which follows during the second semester has already been described. Organized with primary attention to affective goals, it challenges each student to define his own conception of the good man, the good life, and the good society by examining answers to these three profound issues posed by men in fifth century Athens, Renaissance Florence, and contemporary New York City.

We have been examining one reason for sequencing the courses as we did: to assure sequential and cumulative learning. We also wished to avoid culture shock on the part of teachers. Our two ninth grade courses draw upon much of the data often included in civics courses, usually taught at the ninth grade. Our tenth grade course replaces World History. Our eleventh grade course in American history parallels what is usually taught. The twelfth grade, devoted to electives, does not seem revolutionary to teachers. We tried, in short, to place our courses in a sequence which would approximate the sequence taught in the schools so that the teachers we found at each grade level would be better prepared to teach the courses we proposed than some entirely new offering demanding a body of knowledge completely beyond their training.

This practical consideration has seemed to us vitally important. In the long run, it may prove to be an excellent innovative strategy since adopting our curriculum does not imply turning an entire school system topsy-turvy by shuffling teachers with special subject training from one grade level to another. In many schools the American history course taught in eleventh grade has accumulated prestige. To ask American history teachers to move to ninth grade level produces opposition and distrust. We had these practical matters in mind as we designed our curriculum.

A range of objectives requires a range of teaching strategies. Although we began by calling our approach to teaching "inductive", we soon abandoned that term. Some steps in our mode of inquiry--recognizing the logical implications of hypotheses, for example--require deduction. Induction and deduction are combined inextricably in any sophisticated thought process. We also found the term inductive inappropriate for expository teaching which we use for several purposes.

Occasionally we suggest that a teacher give a lecture, often for only a few minutes in the midst of a discussion. We have used sound filmstrips to drive a point home by engaging sound and sight simultaneously during a class period. Our lesson plans frequently call upon a teacher to ask recitation questions designed to make sure that students know evidence from readings as a prelude to generalizing. These techniques are particularly useful to teach knowledge of facts and generalizations. When our major objective was to teach such content, we found expository techniques quite useful.

Most of our classes, however, have been organized around two types of directed discussion. By directed discussion we mean techniques in which the teacher leads students through data toward generalizations by the kinds of questions he asks. Directed discussion has been useful, for example, to teach students the meaning of a concept. Our first lesson in the tenth grade course presents students with the names of eighteen creatures, six birds, six fish, and six land mammals. In class the teacher asks students to classify these creatures. He then asks a series of questions designed to help students see that their classification schemes came out of science. The teacher then introduces his classification scheme: number of letters in a word, number of syllables in a word, and whether a term has one or two words in it. This classification scheme derives from English. The entire exercise has been designed to teach the meaning of a procedural concept: frame of reference. Coming from the child's own experience, it connects the world of the student with the world of the scholar. Our students would know the meaning of the term "frame of reference" less clearly if they had been told what it was and asked to recite a definition. Nor could they have "discovered" the meaning of this term without guidance from the teacher, since they would have no idea about what to "discover" from a list of eighteen creatures.

In addition to teaching concepts, this form of directed discussion helps students learn steps in the proof process. So long as the teacher has each element of the proof process clear in his own mind, he can ask questions which probe his students' recall of these steps and his ability to use them in an investigation. "What are the logical implications of your hypothesis?" he may ask. "Where would you search for data to learn if you are right?" "Would this additional evidence change your hypothesis?" Questions like these constantly challenge students to engage their mental faculties fully in class discussion and to develop sophisticated thought processes.

In the type of directed discussion we have been describing, the teacher involves most members of the class in each day's discussion. Lesson plans frequently suggest group work in which the class, divided into a number of small groups, discusses an issue for a few minutes and prepares a report for a spokesman to give to the entire class. This technique permits a number of students to contribute to discussions simultaneously and helps students learn how to discuss without the teacher's supervision. Many lesson plans also suggest short writing exercises in which each student writes out a hypothesis, a list of pertinent pieces of evidence, or a generalization at a key point during the discussion. Additional evidence introduced in the form of transparencies, recordings, single-concept filmstrips, or short printed handouts at carefully planned points during a discussion focus the attention of all students on the same materials. The change of pace which is a by-product of this varied activity helps to make the class period more interesting. When the entire class is involved in discussion, the teacher directs questions to one student after another whether or not they have their hands raised to be called on. Frequently the teacher encourages a student to respond directly to one of the comments of his classmates.

We stress this type of directed discussion because it enables us to work toward three of our clusters of objectives--inquiry skills, knowledge, and attitudes--simultaneously. We have already discussed its utility in teaching concepts, hypothesis formation, and proof process. In order to reach any of these three goals, students must also learn a large quantity of factual information and generalizations. Directed discussion also contributes substantially toward our attempts to instill certain attitudes into students. Calling on students whether or not they have raised their hands implies that no one gets a free ride. Every student is expected to be a participant and to contribute to the classroom society of which he is temporarily a part. If a teacher works carefully with a shy student or a child with a poor self-image, he can often encourage him to be a willing participant. The teacher can begin by asking a child who has never volunteered to speak to read something from a transparency. The chances of making a mistake in this exercise are minimal. Then, consistently raising the difficulty of the tasks he demands, the teacher can draw the child out until he suddenly realizes--sometimes explicitly only when the teacher points it out in a private conference--that he has been making substantial contributions to the class. The effects of work like this on the self-images of children should be a vital part of social studies instruction.

This type of directed discussion can also be used to encourage preference for a scientific mode of inquiry. Students should not be permitted to make sweeping generalizations without supporting them with evidence. The teacher who consistently demands evidence indicates a preference for inquiry rather than authority as a test for truth. If, on the other hand, a teacher acts as if he knows all the right answers, he implies that truth resides in the approval of an authority figure. Hence, the teacher must be thoroughly familiar with the steps in a mode of inquiry. The sort of question which is appropriate to ask often depends on the previous response of a student; all questions cannot be planned in advance and inserted into a lesson plan. This sort of teaching demands a flexible, democratic, self-confident instructor, who can by the very way in which he teaches, encourage students to prefer inquiry based on evidence and a sound thought process to the authority of anyone as a test for truth.

Another form of directed discussion has proved to be particularly useful for developing coherent value systems. In this form, described so ably by Professor Donald Oliver of Harvard University, the teacher poses a value dilemma and then challenges students who hold different positions on the issue to look at the logical implications of the ideas they hold. Instead of asking questions of one student after another, the teacher concentrates upon the responses of one individual at a time. By asking probing questions or posing challenging examples, he encourages a student to examine his value position in the light of new data. If a student emerges from the discussion with his values unshaken, he has at least clarified the meaning of his value position in operational terms. If he finds his values unworthy of support, he has an opportunity to change them.

This type of directed discussion also stresses the skills of inquiry. The teacher frequently asks a student to state the logical implications of a position which he has taken. Then he may cite a hypothetical case and challenge the student to deal with this new evidence. This entire process is based upon inquiry skills. They are being used primarily to encourage reflection upon values rather than to develop generalizations, but the same steps in the inquiry process apply.

Our curriculum also utilizes the sort of discovery exercises which Professor Byron Massialas and his colleagues have developed extensively. These exercises present data and challenge students to make something of it without intervention by the teacher. We have found them particularly useful for evaluative techniques. For example, if we want to find out whether students can use concepts from political science as a source of questions used to analyze a political system, we can present them with pages from a diary or a government document containing data related to one of the concepts they have learned. Unless students ask analytical questions associated with those concepts, they have not learned to use them as tools, Discovery exercises have not proved to be efficient ways to teach content, nor have they proved useful for teaching either concepts or steps in the proof process. Discovery exercises depend entirely upon student interaction. Students who do not know a mode of inquiry well cannot ask the kinds of questions which challenge students to think through a mode of inquiry in precise scientific form.

Just as we have embraced a range of teaching techniques, we have also utilized a wide variety of materials. In the tenth grade course, for example, expository essays very much like textbook accounts follow each three lessons built around source materials designed for inquiry. These essays have proved to be an efficient way to help students master a body of knowledge. The essays link one set of readings to another, teach some of the facts and generalizations students need for College Board examinations, and summarize the work of each unit.

Most of our reading material, however, is not in traditional expository form. Our "textbooks" consist of readings, each with an introduction and several study questions. Most introductions range between 200 and 400 words. Three or four study questions follow. The reading proper contains data drawn from a great variety of sources: diaries, memoirs, government documents, articles from journals, pieces of fiction, graphs, tables, and so forth. The introductions and study questions guide students to pertinent data within this material. The first questions usually ask for specific factual information or generalizations. The remaining questions probe for the implications of this data. A student who simply memorizes what is in the reading comes to class unprepared. He must go beyond memorization to look for implications and for connections between one reading and others.

In addition to written material collected between the covers of a text, the project has a large audio-visual component. It consists primarily of transparencies, recordings, and single concept slide shows. Although we have experimented with slide tapes and with simulations, we abandoned both during the third year of our project primarily because they were expensive and difficult to make. Moreover, we found that we could attain our objectives satisfactorily by relying only on the three sorts of audiovisual materials--transparencies, recordings, and slides--which already formed the bulk of our audiovisual component.

We decided to use audiovisual materials only when they could make a point better than the written word. We saw no reason to use AV when our objectives could be attained just as well with print. Print is more efficient and less expensive. Although we learned that breaking the routine of classes by using audiovisual materials stimulated student interest, we have not used audiovisuals for the sake of breaking monotony alone. Instead, each piece of audiovisual material has been designed for a specific purpose at a specific part of a specified lesson in the curriculum. Bringing variety to our courses has proved to be a welcome bonus.

Different types of media have proved useful for different subjects or objectives. In our ninth grade courses in comparative political and economic systems, overhead transparencies and sound recordings proved to be particularly useful. We could often present data in tabular form or in the forms of graphs and charts on the overhead projector. Recordings of political speeches, short dramatizations, and similar material presented data in a form which duplicated what students would encounter in later life. Our humanities course, on the other hand, used slides far more than all other media combined. In this course we presented works of art visually. Neither transparencies nor tapes suited our purposes. In the two history courses for tenth and eleventh grade a mixture of the three types of media worked out quite well. For some purposes tapes were excellent. For others we used slides or transparencies. The principle, however, remained constant: present data in the most appropriate form, written or audiovisual, depending on the objectives of instruction for a particular lesson.

Class handouts frequently supplemented the readings in the textbook and our audiovisual materials. A handout consists of a page or two of written material given to students at a particular point during a class discussion. Often this material challenged a hypothesis which students were building. Sometimes it introduced additional evidence about a point under discussion. We learned to use handouts only in cases where it was important to control data, that is to introduce a new idea or a body of factual information at a particular point in a discussion when it would have been inappropriate for students to know this information before the class began. As we accumulated experience, we found additional uses for short handouts. They have become an indispensable part of our repertoire of materials.

Some of our handouts consisted of discovery exercises. In an American history course, for example, we opened a class by giving students seven quotations from the pens of American writers who lived in the 1820's and 1830's. These quotations all implied that opportunities widened for Americans during the early decades of the nineteenth century. The purpose of this discovery exercise was to have students develop hypotheses about the major theme of American life at this time. We have used a number of discovery exercises in this way. Giving students discovery material to examine as homework interferes with evaluative objectives since eager students will spend hours figuring out the "right" answers, thus interfering with the objectives of the day.

Finally, we have used extensive lists of supplementary readings for students. Each of our courses includes between sixty and sixty-eight readings for a semester, or four readings a week for fifteen or sixteen weeks. Most semesters are ninety days long. We helped to assure teachers that in addition to teaching the structure of a discipline they would have time to pursue topics in which they had particular interest or topics on which particular knowledge was required by local regulations. Many teachers chose to use their free days for individual conferences with students, for showing films, for dealing with current events, or for testing. At first they complained that there was no reading for students. Then we developed carefully prepared supplementary reading lists for able and ambitious students to pursue. In a political science course these readings consisted of ten collections of articles originally designed for supplementary reading in college courses, but containing many articles which were suitable for high school freshmen. The second semester freshman course in Comparative Economic Systems was organized around exercises in reading newspapers and periodicals. The extra reading program for the tenth grade course in world history stressed library and research techniques and writing book reviews. During the second semester of the tenth grade, students wrote research papers from sources. The eleventh grade course, an advanced placement American history course, provided an extensive bibliography organized around main themes in American history. Students were required to read three books, all upon one theme. The behavioral science course focused the extra readings around articles from the Scientific American and similar journals. The course in the humanities presented ten paperbacks for each of the three units. This outside reading program provided diversity and stimulation to the more able and ambitious students we taught.

Many cities or states appropriately stress topics in local history which have little interest or meaning for students from other areas of the country. Most American history texts, for example, mention the Alamo and the Bear Flag Rebellion because teachers in Texas and California usually stress these events. We have omitted interesting episodes in local history and government. Any teacher who wishes to stress them has plenty of time remaining within our course outline to do so. Having a program which provides too little required work rather than too much provides abundant opportunities for creative teachers to exercise their talents with creation of materials of instruction particularly suited to their own student audience and their local curricular problems.

Because our objectives, our teaching strategies, and our materials were so varied, we have used a wide range of evaluating instruments. We prepared three sorts of tests for teachers: objective tests to measure knowledge of content and ability to use inquiry skills, essay examinations to evaluate inquiry skills, and research papers designed as a culminating test for the ability to use an entire mode of inquiry without assistance from a teacher. We developed no scientific evaluating instruments for affective objectives; instead we suggested that teachers observe student reactions carefully. Given additional time, money, and personnel, we would have tried to correct this shortcoming of our work. The overall evaluating instruments for the entire project are described in the third section of this Final Report. What we have learned is also described there in detail.

Because we had changed objectives, teaching strategies, types of material, and evaluating procedures, we felt compelled to provide materials to prepare teachers for our curriculum. Three of the four aids we prepared were done outside the scope of the project. One of these, a book by Edwin Fenton entitled The New Social Studies is a short (134-page) expository account of the contemporary curriculum reform movement in the social studies. The second, a college methods book by Mr. Fenton entitled Teaching the New Social Studies in Secondary Schools: An Inductive Approach, pulls together a number of articles from leaders of the curriculum reform movement. The third consists of twelve teacher training films, six done with money from the Ford Foundation and six from our audiovisual grant, which demonstrate inquiry teaching techniques in social studies. These three supplementary items have all proved indispensable to our teacher preparation program.

Although they are necessary, books of philosophy, methods books, and films are not sufficient to do the job. Many of the materials we prepared mean little to teachers without a detailed explanation of how to use them. After spending our first week or two with teachers during our first summer, we decided that daily lesson plans would be an essential part of the project. We have produced a daily lesson plan for each of the sixty required readings in each semester of our four years of courses. Each lesson plan contains content objectives and inquiry objectives; those in the humanities course also specify daily affective objectives. The lesson plans integrate the required readings with audiovisual materials and class handouts. They provide the teacher with one tested strategy for reaching specified objectives in a specified way with specified materials.

Our lesson plans have not been designed to hamstring teachers. Teachers in the Pittsburgh schools used lesson plans in a variety of ways. More mature and sophisticated teachers often ignored a lesson plan if they felt uncomfortable with it, or if they believed that objectives for their particular students should be somewhat different. Less secure teachers followed lesson plans religiously. The majority fell at some point between these two poles on the continuum. We remain convinced, however, that daily lesson plans are absolutely essential for the success of a curriculum project such as ours. It is grossly unfair to teachers to change all the variables--objectives, teaching strategies, materials, evaluating instruments--without indicating what the curriculum developer thinks should be done with what he puts in teachers' hands.

The Trial in the Schools

In the spring of 1963, counselors from the Pittsburgh Public Schools chose 463 able eighth-grade students who were entering ninth grade in eight junior and senior high schools in the fall. They divided them into two matched groups of 230 and 233 students. The control group took the regular curriculum offered in the Pittsburgh Schools: Civics in the ninth grade, World History in tenth, American History in eleventh, and a variety of electives, usually Problems of Democracy, in twelfth. The remaining students were organized into experimental classes.

The third section of this report explains the evaluating procedure in detail. Here we should only note that after the freshman year the new curriculum was taught in five Pittsburgh high schools into which all of our experimental and control students were funneled. Three of those schools--Taylor Allderdice, Peabody, and South Hills--had two sections of experimental classes; the remaining two schools--Perry and Langley--had only one each. With few exceptions, an individual teacher taught only one Project class. This arrangement meant that eight teachers--six from the schools and two from the Project staff--were involved each year.

During most years, two members of the Project's permanent staff taught courses. During the entire four years of the Project, Professors Edwin Fenton, Howard Mehlinger, John M. Good, Richard B. Ford, John Sandberg, and Mitchell P. Lichtenberg taught at one time or another. * In addition, twenty-four teachers from the Pittsburgh Public Schools were involved, six in each of the four years. In September, 1964, an additional experimental class was begun in Horton Watkins High School in Ladue, Missouri, where Mr. Timothy Tomlinson, who had worked as a writer during the summer of 1964, was department head. During the following three years, five teachers from Ladue taught our materials.

The trial of our materials in the classroom played a vital role in the entire project. Most social studies materials which come through regular publishing channels have never been tried when they reach teachers. Lack of classroom experimentation may explain why conventional teacher's manuals are so innocuous and of so little practical help. Publishers have simply gone through the motions, each imitating the other. The work of the curriculum projects may eventually produce a change in this publishing pattern.

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* Professor Ford helped to write Studies in the Non-Western World. Professor Sandberg developed Introduction to the Behavioral Sciences. Each taught the course he worked on and took charge of its revision.

Our students told us when a reading was too long, too difficult, or dull. We kept careful account of comments like these to assist in our revision. We learned immediately when a visual or a recording failed to fill the precise role we had planned for it. The classroom also provided an acid test for lesson plans. Some were too sketchy, some too detailed. Often points we thought students would be sure to know brought only blank stares. Since we were teaching the materials ourselves, we could hardly use poor instruction as an excuse for the shortcomings of our work when a class went awry.

A specific example of what we learned from classroom trial may make its importance clear. During the first and second years of our project, we stated inquiry objectives modeled after the taxonomy compiled by Benjamin Bloom and his colleagues. Bloom's taxonomy ranks skills and abilities in ascending order according to their relative sophistication. But students in the social studies do not master simple skills before they encounter complex ones. A mode of inquiry for the social studies uses skills at the sophisticated end of Bloom's continuum (synthesis, evaluation) before it demands more simple skills such as extrapolation or application. In addition, we were completely unable to make teachers sufficiently comfortable with Bloom to make the taxonomy a practical tool. Our lesson plans which used Bloom's classification scheme for inquiry objectives did not communicate to teachers. Hence, we abandoned the taxonomy and developed our own statement of a mode of inquiry for the social studies (see p. 24 of this Report). The lesson plans based on this statement do communicate to teachers, as we soon learned when we tried them ourselves and sent them out for others to try.

We are convinced that every professional member of the staff of a curriculum project should teach his material in the classroom. He need not teach a full schedule; our staff members usually taught only one high school class a day. Nor need all staff members teach every year, although one person should do so in order to work toward the achievement of a clearly articulated sequence of courses. For others, one year's experience provides a generous dose of reality. The payoff in both a better revision of the material being taught and a more realistic first draft of future student material and lesson plans is well worth the price. We also believe that teaching in the schools helps to win teacher acceptance for the work of a curriculum center. Audiences of teachers to which we have spoken have often been surprised to learn that project directors actually teach students and they have been impressed by what they interpret to be the serious and practical effects of their doing so.

Our Project had insufficient funds to pay teachers for released time so that they could make extensive commentaries on materials. A few teachers conscientiously wrote critiques of readings throughout the year. Most did not. The Project directors were supposed to visit teachers in class; they had little time to do so and only a few visits took place. Moreover, the periodic meetings which the staff of each year's course was supposed to hold became entirely too infrequent because of the press of other business. The occasional meetings we did call were not particularly useful. Most teachers made general rather than specific comments, probably because we were unable to provide funds to release them from part of their teaching duties in order to undertake an extensive commentary. Often a member of the permanent staff who was teaching the course had already discovered what teachers told us.

With the exception of the five instructors at Horton Watkins High School at Ladue, all of the teachers who have taught the Project had a one-month preparation period during the previous summer. We have no funds to conduct an extensive field test among teachers who have neither worked with the project nor studied its materials. Nor is the second version of our materials--the one released into the public domain--good enough to justify an extensive field trial. As the section of this Report on dissemination will indicate, our "field test" will come after our materials have been published commercially and not before. Clearly horse and cart have become interchanged.

We will, however, be able to offer substantial support to teachers. We have a rationale which explains in detail what our curriculum is designed to do, a methods book (which is being revised to bring it up-to-date in a rapidly developing field), a dozen teacher training films, all the written and audiovisual materials for four years of curriculum, and full teacher's manuals which include daily lesson plans. The published version of our materials will have been carefully revised by a member of the staff who has (with one exception) taught the course for which he is responsible. Although our published material will have had the sort of classroom trial which commercial publishers have not given to social studies materials in the past, we would feel more secure if we knew the results of a field test, even on a small scale, with the final version of our materials.

Our curriculum project has affected the social studies curriculum in the Pittsburgh Public Schools. The material developed by the Project has become the standard curriculum for the Pittsburgh Scholars' Program. Seven hundred students a year, beginning at the ninth grade level, are now enrolled in these courses. Of the group of twenty-four teachers who helped in the development of the materials, fifteen remain in the schools where many are leaders in their own departments. They have testified over and over again that the materials and techniques of teaching learned through the Project have been adapted widely to average and below average students whom they also instruct. Since no teacher is permitted to instruct more than two classes in the Scholars' Program, a large number of students of all abilities in the schools have benefited by the additional training acquired by teachers who worked on the Project.

Dissemination

In most projects, school trial follows development and dissemination follows the school trial. Our project has carried on all three steps at once. Although the work load put a considerable strain upon the staff, the effects of this extra effort may eventually justify the energy expended.

By 1963 Carnegie had already established a reputation as a center for innovative curriculum work in the social studies through several projects undertaken with the Pittsburgh Public Schools for the development of advanced placement history courses. Mr. Fenton had become a member of the national committee which drew up Advanced Placement Examinations. Several members of the Carnegie faculty had been addressing audiences about the Advanced Placement Program during 1961 and 1962. When the new project began, requests for speeches came in increasing numbers and were filled when staff members were available.

Between May, 1963, when the Project began, and October, 1967, when it ended, the staff of the Project made a total of 250 speeches in thirty-five states about its work. This number does not include talks within Pittsburgh itself. Members of the staff spoke to state or national conventions of social studies teachers on twenty-six occasions. Most of the other appearances were at city, county, or school district level. Although we made no attempt to keep an accurate count of the size of the audiences we spoke to, we estimate that the number of teachers who heard us totals at least 40,000.

Most of these speeches were not confined to the work of the Carnegie groups. As the staff traveled, we gathered a considerable amount of information about developments in other curriculum centers. Most of our speeches concerned the new social studies in general rather than the Carnegie Project in particular, although we made more references to our own work which we knew well than to the work of any other group. The extensive demand for our services as speakers indicates widespread interest in the works of the curriculum projects by teachers all over the nation.

During the life of our Project, members of the staff published articles about our work or about social studies curriculum reform more generally. The Carnegie group obtained reprints of most articles and mailed them on request without charge throughout the entire four years of the Project.

In May, 1964 Professor Fenton was chairman of a conference in which the directors of the English and social studies curriculum projects originally funded in 1963 were invited to participate. Each curriculum center described its work and discussed mutual problems. The papers originally delivered at the conference were eventually published in Social Education, the journal of the National Council for the Social Studies in April, 1965. Final reports of this conference were circulated to all participants and to other people upon request.

It soon became evident that the principles of the new social studies were not at all clear to teachers. Hence, Professor Fenton decided to write a methods book. He collected some of the more important articles about the new social studies and connected them with introductions and study questions in such a way that students and teachers could become acquainted with the latest developments in the field. This volume was entitled Teaching the New Social Studies in Secondary Schools: An Inductive Approach (Holt, Rinehart and Winston, Inc., 1966). Since publication three years ago, it has sold widely. In addition, the publishers distributed 3,500 copies without charge to professionals in the field.

During the academic year 1965-66, Carnegie granted Professor Edwin Fenton a full year's academic leave. Half of his salary was paid by the University; the Ford Foundation gave him the remaining half as well as a generous expense account. During that entire year Professor Fenton continued to devote about a quarter of his time to the curriculum project. During the remaining three-quarters of his time he traveled extensively throughout the United States looking at social studies curriculum reform projects. During May and June, 1966 he wrote a short book entitled The New Social Studies reporting to teachers, curriculum workers, administrators, and parents what he had learned. This 134-page volume was published in April, 1967. It contains many examples of work from the curriculum projects, including some materials developed at Carnegie. It may play an important role in winning acceptance for curricular reform in the social studies by teachers, school administrators, and parents.

A grant from the Ford Foundation to Carnegie made originally in 1962 contained funds to prepare teaching films. Over several days in Christmas vacation, 1964, the staff of the Carnegie Curriculum Center made six half-hour kinescopes at the local educational television station, WQED. One was based on material in the ninth grade course in Comparative Political Systems. The remaining five were based on the first week's work in the tenth grade course in The Shaping of Western Society. These films demonstrated inquiry teaching techniques. Professor Fenton taught thirty-two ninth grade students from Peabody High School, one of our experimental schools. Rights to distribute these kinescopes were sold to Holt, Rinehart and Winston, Inc. which pays all the royalties to Carnegie in order to finance future curriculum work. Both Holt and a number of libraries have been renting copies extensively. Both the films and the accompanying Viewer's Guide have probably played a vital role in disseminating ideas common to a number of curriculum projects.

During the summer and fall of 1967, the Project staff produced six additional kinescopes demonstrating the use of audiovisual materials for inquiry teaching. Holt, Rinehart and Winston began to distribute these kinescopes during the summer of 1968. They should contribute to teacher understanding of the new social studies.

The Carnegie Curriculum Center has become a focal point for in-service work by teachers. All of this work, of course, has not been a direct outcome of the curriculum project, but much of it has been related to the project in one way or another. It began in the summer of 1964 when, under the directorship of Professor Richard Ford and Edwin Fenton, Carnegie played host to an NDEA Title XI Institute enrolling fifty teachers of courses in World Cultures. They met on the campus for six weeks to study the history and culture of the non-Western world and to write curricular units styled after the ones being written in the Project. The presence of the curriculum project on the campus helped to make this Institute a success.

In the summer of 1965 twelve college methods teachers and twelve supervising teachers who worked with them attended a six-week Institute designed to introduce them to the principles of the new social studies. In preparation for this Institute, the Curriculum Center began to make an extensive collection of experimental materials from curriculum projects, schools, and commercial publishers. Professors Ford and Fenton, the co-directors of this Institute, helped participants to study this collection of materials and to learn the principles on which they were built.

As Professor Fenton visited directors of curriculum projects during 1965-66, he expanded the Center's already extensive collection of experimental materials. This collection formed the base of a curriculum library instrumental in another NDEA Institute held for two weeks in June, 1967. Forty Social Studies specialists from forty states assembled at Carnegie to listen to talks by the directors of ten social studies curriculum projects and to study the implications of the curriculum materials collected in the Project library.

Beginning in September, 1967, Carnegie organized a year-round part-time Title XI Institute for sixty social studies teachers from the Pittsburgh Public Schools, the entire social studies faculty for the Pittsburgh Scholars' Program. Professors Mitchell Lichtenberg and Edwin Fenton were co-directors of this Institute. Some of the participants had already worked on the project at Carnegie. This year-round Institute emphasized the principles of the new social studies and concentrated on instructional techniques essential for teaching our own project.

Three Title XI economics institutes have also been held at Carnegie during the summers of 1966, 1967, and 1968. Each has been directed by Professor Phillip Saunders who also directs a curriculum center for the Developmental Economics Education Program. In addition to Mr. Saunders, the faculty includes Mrs. Mindella Schultz who began her curriculum work as a writer for the Social Studies Curriculum Center, and Mr. John Soboslay, a Pittsburgh Public Schools teacher who also worked as a writer and teacher for the Project in 1963. Although the staff of the

Social Studies Curriculum Center has in no way been responsible for the work of the three economics institutes, its presence on the campus has been a valuable resource. Participants in the economics institutes, for example, used the Project's curriculum library heavily.

During June, 1968, Carnegie held a Title XI Institute for fifty social studies supervisors recruited nationally. Ten directors of major social studies curriculum projects described the work of their Centers and helped participants to analyze the materials which their projects had produced. Fifty additional supervisors will attend another similar institute during June, 1969. The staff of the social studies curriculum project and the collection of materials which the project assembled will again be used by key educational decision makers involved in the process of dissemination.

During the period between June 1964 and August 1968, Carnegie will have played host to a total of 400 teachers who attended or will attend its nine Title XI Institutes. Although the impact of this in-service work cannot be assessed scientifically, it has probably played a fundamental role in disseminating the work of the social studies curriculum projects.

In August, 1964--as soon as our ninth grade courses had been revised--we began negotiations with the United States Office of Education to release our research on the ninth grade material and contemplated completion of our research on the tenth grade by June, 1965. Negotiations were complicated because the United States Office was trying to establish a general policy. Finally, on March 1, 1966, we received permission to accept bids from printers to release the public domain version of the ninth and tenth grade courses. The eleventh and twelfth grade courses followed in the spring of 1969. General Systems and Graphics (933 Penn Avenue, Pittsburgh, Pa. 15222) submitted the low bid. By February, 1969 the following quantities had been sold:

Comparative Political Systems	1000
Comparative Economic Systems	1000
The Shaping of Western Society	1000
Studies in the Non-Western World	1000
The American Experience	400
An Introduction to Behavioral Science	400
The Humanities in Three Cities	400

As Holt, Rinehart and Winston published revised versions of our materials, the demand for the public domain version decreased, and General Systems did not reprint. Releasing our materials as soon as possible got research into the hands of the academic community as rapidly as possible.

The Carnegie staff strongly favored the public domain policy of the Federal Government. Our materials were not polished enough for commercial publication. As this report explained in earlier pages, we tried to do too much too rapidly with too little. There was, however, no reason why the educational community should not know what we had accomplished. With each course we relaased, we wrote a short account of what we judged to be the major shortcomings of our work. Dozens of letters in our files indicate that many teachers have found our readings, audiovisual materials, and lesson plans provocative and stimulating. The increasing demands for our services as speakers support this conclusion.

After our materials had been released into the public domain, ten members of the Carnegie group offered their services as writers to bring out a revised commercial version of our materials. Four publishers submitted bids. After considerable debate Holt, Rinehart and Winston Inc. was chosen. The staff agreed to write a drastically re-revised version of the ninth, tenth, and twelfth grade materials. Independently of the Project, four members of Carnegie's History Department agreed to write an eleventh grade course. All these courses were to be designed for typical students, not for the able students for whom the original research on the project was designed. Mrs. Mindella Schultz, a former Pittsburgh high school teacher who had been active in the Project from the beginning, took major editorial responsibility for a volume in Comparative Political Systems. Former Dean John R. Coleman, now President of Haverford College, completely revised the course in Comparative Economic Systems. These two courses were published for use in the schools in the fall of 1967. The two tenth grade courses followed in 1968, and the eleventh and twelfth grade courses will be available by late summer, 1969. To date, sales have been excellent.

Only with commercial publication of our materials can we expect to affect the behavior of a significant number of students. Since the materials released into the public domain contain many copyrighted articles which we have secured permission to use experimentally, they cannot be adopted for classroom use. Until someone secured permission and paid a fee, our materials were of little practical benefit to society. Holt, Rinehart and Winston is investing a very large sum of money in the revision, publication, and promotion of materials adapted from the Carnegie Project. Only this heavy financial investment and the experience of excellent house editors could have brought our materials to publishable quality. Only when they have been polished carefully and disseminated widely through regular commercial markets can they seek their place in the schools. We expect them to be adopted widely throughout secondary schools in this country.

As promotion for the forthcoming Holt Social Studies Curriculum and as a service to the educational community, the Project staff and Holt, Rinehart and Winston Inc. developed five experimental units taken from the five books designed for ninth, tenth, and eleventh grades. Each unit contains materials for one week's work. Each is accompanied by a Teacher's Manual containing a brief rationale for the Project, daily lesson plans for the Experimental Unit, and masters from which transparencies and class handouts may be made. Holt printed 50,000 copies of each unit. Every participant in the 1966 and 1967 Title XI NDEA Institutes received a full set of the units. Teachers who request them may receive enough copies of any one unit to try it out experimentally with their students. These units have been well received by the profession.

As the Project developed, our efforts at dissemination began to fall into place. Our original objective had been to change the behavior of a large number of students in American classrooms. To do so, we decided to start with materials, primarily because without materials behavior is not likely to change. Through new materials we expected to be able to demonstrate to teachers new ways of reaching new sorts of objectives. The NDEA Institutes, and the Experienced Teacher Fellowship Programs constituted a serious effort to work closely for sustained periods with particularly talented teachers. The methods book, The New Social Studies, the classroom films, the large number of speaking engagements, and the articles written for professional journals were all designed for a wider audience. They communicated some of the results of our research and--hopefully--put teachers in a receptive mood for the work of the curriculum projects.

Whether or not the entire Carnegie project has significant effect on American education will not be known for several years. It will have reached its primary goal only if a large number of schools adopt our materials, and if the students in those schools significantly change their behavior toward the objectives we have set.

CHAPTER III
RESEARCH AND EVALUATION

Curriculum Research at Carnegie

The grant which established the Carnegie Social Studies Curriculum Center carried the following mandate from the Cooperative Research Branch of the United States Office of Education:

1. to redefine the aims of social studies curriculum at one or more grade levels
2. to develop sequences for presenting subject matter that are based on what is known about human development and the teaching-learning processes
3. to work out methods and prepare materials to meet specific needs
4. to try out new methods and materials and evaluate them, and
5. to disseminate information about the most promising methods and materials discovered. (24)

All but the fifth task can properly be defined as curriculum research. The establishment of aims requires research into the nature of the learner, the nature of society, the nature of social science disciplines, and the philosophical assumptions upon which social studies objectives are based. The development of learning sequences and new methods and materials requires the practical application of principles of instruction which are based on what is known or hypothesized about how children learn. The experimental trial and evaluation of methods and materials requires empirical research into the effects of the curriculum.

During the first three years of the project, the staff devoted major attention to the first two research tasks. The plans for evaluating the effects of the curriculum were formulated, and implementation of those plans was begun, but the directors of the Center, caught up in the first two research problems, had little time for this work. The evaluation program was left almost entirely to the psychometrician who had joined the staff as the project evaluator. The great failure of the Center was that although developmental research and evaluation research were carried on concurrently, they were not carried on jointly. Meetings between the directors and the project evaluator were rare. Consequently, the project evaluator was ill-informed about the hypotheses which the directors wished to test, and the directors were not challenged by the evaluator to develop a well-conceived research design by which the hypotheses could be tested.

Research on Aims

The definition of aims for the social studies must begin with finding a justifiable answer to one basic question: What can the disciplines associated with the social studies contribute to the desirable growth of the students? To answer this question the curriculum researcher must find answers to a host of subordinate questions. What is the nature of the disciplines? What kind of a society will the students probably have to live in? What will society demand of the students when they become adults? What knowledge, skills, attitudes, and values will help the student to realize all of his potentials? What can the student learn? The Center's answers to these questions have already been discussed in Chapter II of this report in the discussion of the Carnegie project's rationale. It is appropriate here, however, to indicate the research that led to the objectives of the Carnegie curriculum.

Historians and social scientists agree that modern society is complex and ever-changing. Change is the major theme of most articles and books written about society in the twentieth century. Research in history and the social sciences has indicated that simplistic notions about the workings of society have obscured the complexities of the human condition. Evidence of this nature challenged the Carnegie Center to develop a curriculum which would help the student organize and assess the significance of information about how his society is changing. The curriculum would have to help the student learn to penetrate beyond "common sense" or conventional wisdom to accurate and meaningful generalizations about society. The nature of modern civilization is such that an individual will be hopelessly lost if he does not have the ability or the willingness to organize and reorganize his conceptions about the nature of human society. A modern social studies program must give him that ability and develop that willingness.

But how could a social studies program help an adolescent learn to cope with his complex and changing world? Jerome Bruner's Process of Education (4) posed hypotheses to answer this question. They became the ideas upon which the Carnegie Center began to construct its curriculum. Bruner hypothesized that if the student learned the "structure" of the disciplines he would be more capable of probing into the complexities of society and better able to deal with the inundation of new information about human affairs. The Carnegie staff decided that one of the major objectives of a new social studies program should be to learn the structure of the disciplines of history and the social sciences.

Bruner's book, however, was unclear about what the structure of history and the social sciences is. As work on the curriculum proceeded, the Carnegie group increasingly identified structure with the mode of inquiry of history and the social sciences. One influential article, Joseph Schwab's "The Concept of the Structure of a Discipline", (21) pointed the way. Schwab stated that there were two parts to structure "...the body of imposed conceptions which define the investigated subject matter of that discipline and control its inquiries" and "...the pattern of its procedure, its method, how it goes about using its conceptions to attain its goals."

With Schwab's general definition as a guideline, the Carnegie staff attempted to identify the "body of imposed conceptions" which would be most useful to students. The staff considered the list of generalizations compiled by Hanna and Lee (9). Generalizations were rejected, however, because they are declarative statements representing the end product of inquiry rather than conceptions which guide a search for data. The work of the Syracuse Social Studies Curriculum Center (18) and of Lawrence Senesh (22) seemed to offer more hope of finding a useful body of imposed conceptions. Senesh and the Syracuse group identified structure with concepts, or general terms which labeled important aspects of human society. The Carnegie group hypothesized that if students could learn to ask questions about selected aspects of human society, they would be better able to develop useful hypotheses for understanding its complexities. The Center staff decided that concepts would not be taught as ends in themselves, but as terms which could suggest a number of analytical questions that students could put to data.

Having decided to make the teaching of concepts as tools for inquiry a major objective of the new curriculum, the staff had to decide which concepts to teach. At first the staff relied on experts in the discipline to indicate which concepts they believed would bring about the most fruitful inquiry. Position papers written especially for the Carnegie Project by James March in political science and John R. Coleman in economics provided the Center with an initial list of concepts for the first two courses. Caroline B. Rose's Sociology, the Study of Man in Society, (20) one of the position papers originally written for the University of Minnesota Project Social Studies and later published by Charles E. Merrill, guided us to the concepts we chose from sociology. Our work in the schools further refined these lists as we began to determine which concepts could be understood by the youngsters we were teaching, which ones helped them understand the nature of contemporary problems, and which ones were most central to the students' interests and needs.

Since Schwab's definition of structure also includes the procedures historians and social scientists use to attain their goals, the Carnegie group also had to decide upon those intellectual skills which students would need to test hypotheses. *The Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain* by Benjamin Bloom and others (2) suggested the general intellectual abilities which needed to be developed. The procedures identified by Massialis and his colleagues at Indiana, (12) Ennis at Cornell (7) and Crabtree at U.C.L.A. (5) suggested the operations students should be taught to perform when inquiring about society. Finally, Robert Mager's *Preparing Instructional Objectives* (11) indicated the efficacy of defining goals in behavioral terms. This research culminated in a behavioral statement of the mode of inquiry objectives in every lesson plan written for all courses in the curriculum.

The Center staff also conducted research to determine the attitude and value objectives of the curriculum. The publication of *The Taxonomy of Educational Objectives: Handbook II, the Affective Domain* (10) provided a useful framework for considering these objectives. Our behavioral and procedural attitude objectives were based upon this work. But the question of what to do about substantive values remained. Evidence had begun to pile up that the political socialization of American children was nearly complete by the time they reached the age of twelve or thirteen. According to Easton, Hess, (6) and others, (1, 17) basic attitudes and values concerning the American political system were formed before the child left elementary school. Yet Friedenberg (8) had hypothesized that the nature of American high schools prevented adolescents from examining themselves and their society in order to develop a coherent value system with which they could identify. The work of Oliver and Shaver (16) at Harvard indicated that students could learn how to clarify, qualify, and justify their positions on social issues if they were given the opportunity in class to deal with the value conflicts inherent in a pluralistic, democratic society. The recent volume *Values and Teaching*, by Raths and others (19) presented a similar argument.

The affective aims of the Carnegie curriculum took shape as the work of these researchers became known. The staff of the Center decided that high school social studies courses should encourage students to reflect upon and clarify their values. Research had indicated that high school students had already developed their feelings about society. It also indicated, however, that these feelings were not articulated coherently. If they were allowed to reflect about values, students should be able to translate vague feelings into statements of belief. They should be able to test the consequences of these beliefs and to recognize contradictions among the values they had. Some of them should be able to organize an integrated and justifiable value system. The twelfth grade course in the humanities stresses this important goal.

Once the inquiry and affective aims had been clarified, the task of identifying knowledge objectives had become somewhat simplified. The students would have to know those things which would enable them to inquire; that is, they would have to know some concepts, some procedures, and some data. Moreover, they would have to know those things which would enable them to clarify their values--the intellectual traditions of the western and non-western worlds and the values associated with various political, economic, and social systems. But other criteria were also needed. The student could inquire about almost anything, and the intellectual histories of the west and non-west are too rich ever to be mined completely. The Carnegie staff considered several approaches to the selection of content. After reading much of the abundant literature in the field, (14,15) the staff decided upon the criteria which are outlined in the rationale in Chapter II of this report. Almost all authorities agree that the needs and interests of the child are of paramount importance in selecting content. However, not all are agreed about what constitutes the needs and interests of the child. The experience of the Center staff with young people over the years seemed to provide the best guidelines to select content to meet this criteria. Almost all researchers also believe that students ought to know the complexities involved in man's most important contemporary problems. Again, however, there is no unanimity about which problems are most important. The Center staff had to be arbitrary in its selection, though it believes that the problems chosen for study concern more people and are of more pressing importance than others which might have been selected.

Research of Methods, Materials, and Learning Sequence

Most of the efforts of the Curriculum Center were devoted to developing new materials, designing teaching strategies, and planning the sequence of instruction. In one sense, this activity can be termed "curriculum development" in that it involves the creation of a product for use in the schools. In another sense it can be termed "curriculum research," in that the Carnegie staff attempted to determine the optimum learning conditions for achieving its aims.

Bruner's hypotheses once again provided the initial guidelines for designing materials and strategies. Bruner's argument for "discovery" was persuasive:

> Emphasis on discovery in learning has precisely the

> effect on the learner of leading him to be a constructionist, to organize what he is encountering in a manner not only designed to discover regularity and relatedness, but also to avoid the kind of information drift that fails to keep account of the uses to which information might have been put. Emphasis on discovery, indeed, helps the child to learn the varieties of problem solving, of transforming information for better use, helps him learn how to go about the very task of learning. (3)

Emphasis on discovery implied that neither the materials which students read nor the strategies which teachers used would tell the students the generalizations they were to discover. Rather than present the conclusions of historians, the materials would present data from which hypotheses could be developed. Rather than lecture to the students, the teachers would emphasize discussion techniques which would encourage the students to organize data. The work of Massialis and Zevin (13) indicated that "discovery episodes" helped students increase their skills in developing and testing hypotheses.

The trial of materials and strategies in the classroom, however, indicated that modifications of the "discovery method" had to be made. Teachers of project material indicated that pure discovery techniques alone did not show students how to probe into the complexities of problems because they did not teach them how to use social science concepts for asking analytical questions and developing hypotheses. Teachers of the experimental courses indicated that more directive techniques had to be used to develop more sophisticated skills. As research proceeded, the Carnegie Center designed materials and strategies which gave more cues to the students, gradually withdrawing cues as the students gained more experience in inquiry. When a new set of concepts was introduced, the materials and the strategies were designed to explain the concepts and indicate a number of analytical questions associated with them. In later lessons, students were given a problem, and told what concepts might be useful to solve it, but they were asked to develop new questions to put to data. Finally, students were given only a problem and asked to determine independently which concepts to use and what analytical questions to ask.

As the trial of the curriculum in the classroom proceeded, we began to learn what materials and strategies were best suited to specific objectives. We learned, for example, that slide tapes were more appropriate for reaching affective objectives than for reaching inquiry objectives. The right combination of music, words, and pictures could be used to induce feelings in the students which they could then reflect upon. Slide tapes also seemed appropriate for reaching knowledge objectives. Few students missed items on objective tests which had been based upon information presented in slide tapes. Single concept filmstrips and photoessays on the other hand, seemed more appropriate for giving students data from which they could develop hypotheses. Armed with a battery of analytical questions, students were able to pick out significant aspects of the pictures upon which to base their initial hypotheses. The teachers of the project material found that transparencies for the overhead projector could be used for more than illustrative material during a lecture. Like single concept filmstrips and photo essays, they could present data controlled in such a way that students could be led to develop hypotheses. Second, transparencies proved to be an efficient way to give students large quantities of data which they could use to test hypotheses. Tape recordings proved to be effective ways of introducing data for the development of hypotheses and also excellent devices to set up problems of value conflict upon which the students could reflect.

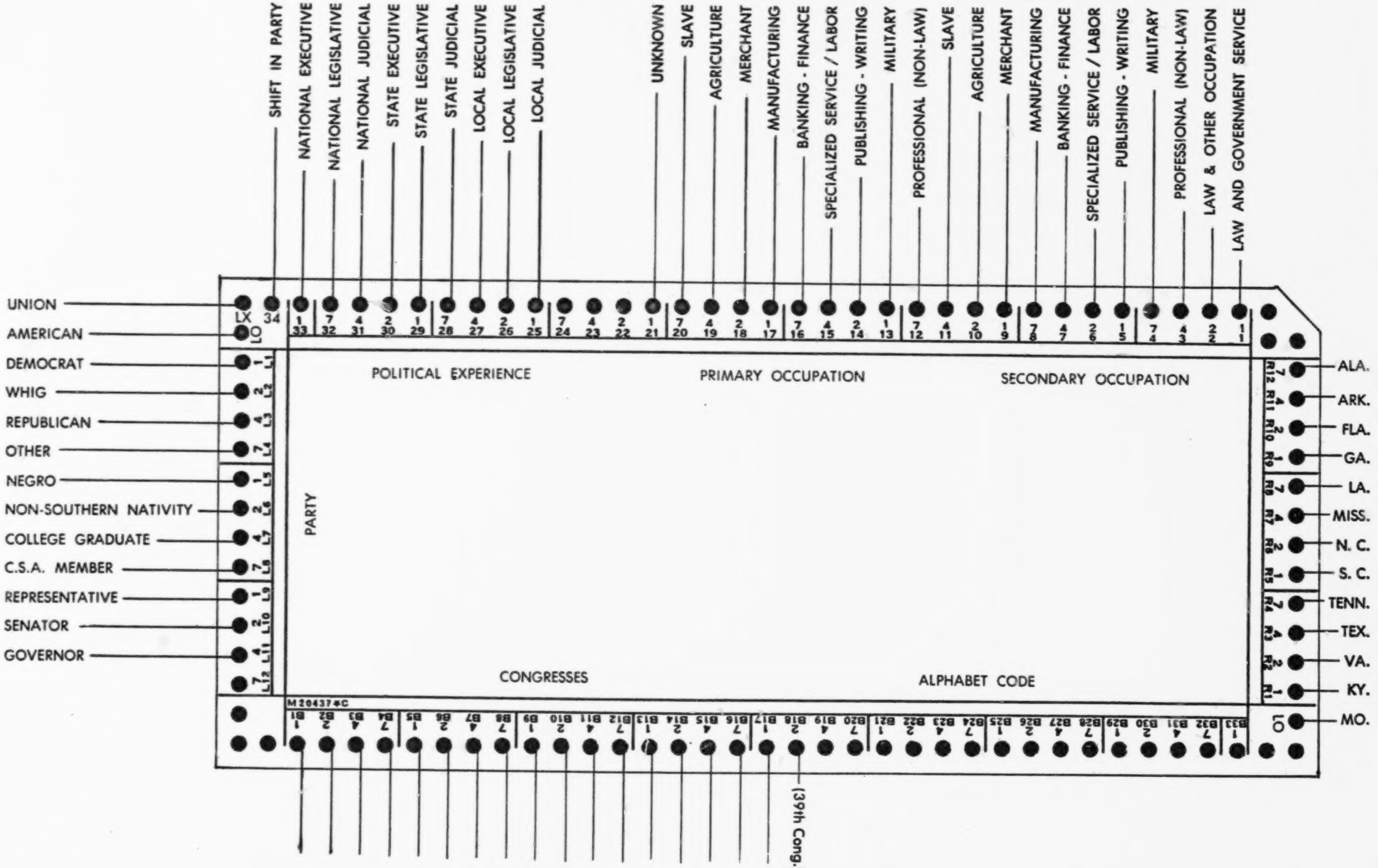
Mr. Mitchell P. Lichtenberg, the Director of Media Development for the curriculum project, developed a prototype of a data bank which promises to be an excellent device for helping students to ask analytical questions. A data bank consists of a set of cards with holes punched near the margin. The cards we used contained 96 holes. When the margin between one of the holes and the edge of the card is punched out, the researcher can insert a needle through the entire pack of cards, causing the punched ones to drop from the pack. These cards represent a primitive sort of computer and can store large quantities of information in a handy form.

The data bank Mr. Lichtenberg developed in detail contained information about approximately 900 U.S. senators, U.S. representatives, and governors from thirteen southern and border states between the years 1850 and 1880. The specific information about each man is indicated on the key sheet which follows on page 59.

The bank was designed to be used while students were studying the Reconstruction period in American history. The basic concept contained in the data is leadership and the way in which patterns of southern leadership changed between 1850 and 1880. The teacher helps the students to identify a problem on which the bank has data. The problem of leadership is implied by the entries on the key sheet which the students have before them. The teacher then encourages students to develop hypotheses about leadership patterns and to check their hypotheses by sorting through the bank. We have demonstrated the use of this bank on a film produced under the terms of our contract, filed with the United States Office, and distributed in a revised form by Holt, Rinehart and Winston. The title is "Using Historical Statistics: United States Southern Leadership 1850-1880. A Data Bank."

We were not able to assess scientifically the impact of the data bank on the ability of students to ask analytical questions. Mr. Lichtenberg is continuing research on this topic with funds supplied by the University. We expect to be able to report results of this additional work in 1969.

DATA BANK NO. 1
SOUTHERN LEADERSHIP 1850-1880


SHIFT IN PARTY
NATIONAL EXECUTIVE
NATIONAL LEGISLATIVE
NATIONAL JUDICIAL
STATE EXECUTIVE
STATE LEGISLATIVE
STATE JUDICIAL
LOCAL EXECUTIVE
LOCAL LEGISLATIVE
LOCAL JUDICIAL
UNKNOWN
SLAVE
AGRICULTURE
MERCHANT
MANUFACTURING
BANKING - FINANCE
SPECIALIZED SERVICE / LABOR
PUBLISHING - WRITING
MILITARY
PROFESSIONAL (NON-LAW)
SLAVE
AGRICULTURE
MERCHANT
MANUFACTURING
BANKING - FINANCE
SPECIALIZED SERVICE / LABOR
PUBLISHING - WRITING
MILITARY
PROFESSIONAL (NON-LAW)
LAW & OTHER OCCUPATION
LAW AND GOVERNMENT SERVICE
UNION
AMERICAN
DEMOCRAT
WHIG
REPUBLICAN
OTHER
NEGRO
NON-SOUTHERN NATIVITY
COLLEGE GRADUATE
C.S.A. MEMBER
REPRESENTATIVE
SENATOR
GOVERNOR
LX
LO
34
POLITICAL EXPERIENCE
PRIMARY OCCUPATION
SECONDARY OCCUPATION
PARTY
CONGRESSES
ALPHABET CODE
M20437#C
ALA.
ARK.
FLA.
GA.
LA.
MISS.
N. C.
S. C.
TENN.
TEX.
VA.
KY.
MO.
30th
31st
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34th
35th
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37th
38th
39th
40th
41st
42nd
43rd
44th
45th
46th
(39th Cong.) ENS

The project also experimented with simulation techniques. Two games were used in the two ninth grade courses. In the tenth grade course, simulated decision-making episodes were tried without "gaming" (that is, without any attempt to have winners and losers). On the whole, the project found simulation useful for helping students to feel what it is like to be placed in a decision-making situation, so long as the game was not so complicated that the students had to spend long periods in making calculations. However, teachers reported that students were not always able to analyze the way they behaved once the simulation was over.

On the whole, student reading materials which described human behavior tended to evoke more response from the students than analytical articles, government documents, or philosophical discussions. The staff tried to obtain diaries, letters, journals, and eyewitness accounts whenever possible. Occasionally, short, descriptive case studies were used to provide data. No inflexible rule can be established on the basis of teacher evaluations of the students' response to the materials, however. For example, though most of the tenth grade teachers agreed that Saint-Simon's description of Louis XIV's court captured student interest, many also reported excellent class response to Colbert's regulations about the French economy.

In summary, though we made modifications in Bruner's "discovery" technique, we found directed discussion combined with reliance on primary data effective means to achieve our inquiry objectives. They also contributed to achieving one of our affective aims, namely, increasing student willingness to think about social science problems. Moreover, as the results of the evaluation of our curriculum indicate, students did not sacrifice learning traditional content to any great degree.

Evaluation of the Curriculum

What did the curriculum do? Did the new materials and teaching strategies help students achieve the objectives which the Carnegie group had set? To answer these questions, the Carnegie curriculum was taught experimentally to able students in five high schools who were matched against comparison sections. During the first two years of the project, a battery of standardized tests was administered to the two groups. When standardized tests appeared inadequate for our needs, we decided to alter the evaluation strategy. During the third year we studied the problem of evaluating the curriculum, and in the final year, a specially designed test to measure inquiry skills was administered to the experimental and comparison sections in two of the Pittsburgh high schools. A detailed account of the evaluation program follows.

A. Selecting and grouping the students

For the first year the study was conducted with only two experimental and two comparison sections in one of the trial schools.

Since the major effort during the first year of the project was to carry out the research necessary to develop the curriculum, we did not wish to devote a large share of our resources to evaluating the effects of the first experimental versions of the courses we developed. We wished instead to carry on what Scriven (23) has called "formative" evaluation in which we would try to determine what aspects of the experimental curriculum needed improvement. We did follow these two groups for two years, however, to carry out what Scriven has called a "summative evaluation" of the effects of the curriculum. One hundred thirty-three students were selected as subjects for the summative evaluation, 68 in the comparison group and 65 in the experimental sections. Since the project was designed to improve social studies for the able student, we designated an Otis I.Q. of 115 as the minimum I.Q. for the two sections, although a few students with lower I.Q.'s were admitted on the basis of strong teacher recommendations. Conversely, a few students with I.Q.'s of 115 or better were rejected on the basis of teacher recommendations. The students were randomly selected for each section. The mean I.Q. of the experimental class was 123.28, that of the comparison group was 123.50.

For the second year of the study, 463 able students from all five trial high schools were selected in the same way to be the subjects of the study. Again, using random selection within each school, the students were divided into experimental and comparison sections, 230 taking the new curriculum and 233 following the standard curriculum established by the Pittsburgh Board of Education. Students in the experimental sections studied the revised versions of the project materials.

The final summative evaluation was to be carried out on these 463 students. However, problems arose during the three years in which the study was carried out to reduce this number to 190 students in only two of the high schools. In one of the other schools, normal attrition reduced the experimental and control sections, already small, to less than eighteen each, and the two groups were merged after one year. In another school, several students from comparison sections were allowed to enter experimental sections after the first year, and in the third school, the comparison class was dissolved after the first year. Of the 190 students who remained, 112 were in experimental sections and 78 in comparison classes. the mean Otis I.Q. of the experimental group was 124.95, that of the comparison group was 126.10. However, the standard deviation of I.Q. in the experimental group was only 6.93 while that of the comparison group was 9.29.

B. Selection of Teachers

Teachers for both the experimental and comparison sections were chosen jointly by administrative officers of the Pittsburgh Schools and the directors of the Curriculum Center. Each experimental teacher spent a summer at Carnegie helping to develop the materials which would be used. No special training or instructions were given to the comparison teachers. The directors tried to balance the teachers of the two groups in terms of experience and education as much as possible. On average, the experimental teachers had somewhat less experience in the schools and had taken somewhat less formal course work in history and the social sciences than their counterparts. Maintaining balance proved to be very difficult. One of the teachers of an experimental section resigned before teaching the revised version of the American history course. Her replacement was a recent graduate of Carnegie Institute of Technology who had never before taught in the schools as a full-time professional. Another teacher of an experimental section was reassigned and was also replaced by a recent graduate of Carnegie. One of the teachers of a comparison section retired at the end of the first semester and was replaced by a man who had taught the experimental course in another school.

C. Evaluation of the curriculum using standardized tests

During the first and second years of the project both experimental and comparison groups were given a battery of standardized tests to determine whether or not the new curriculum had any significant effect on the behaviors measured by these tests. The tests were selected jointly by the directors and the project evaluator. When the project evaluator resigned after the second year of the curriculum study, he submitted an interim report which presented the results of the testing program and his interpretation of the data. The discussion which follows is based upon that report.

1. Testing the effects of the ninth grade program

Two evaluations of the ninth grade program were carried out. The first was based on the first materials produced by the Center. Students in two experimental and two comparison classes in one Pittsburgh high school were the subjects of the study. The second evaluation tested the revised version of the materials and was conducted on the 463 experimental and comparison students in the five Pittsburgh high schools which were designated as centers for the curriculum study. The results reported below are those obtained from only the second evaluation. The first evaluation was brief and revealed little. However, the classes used for the first evaluation of the ninth grade program were tested again in tenth grade to determine the effects of the unrevised tenth grade experimental materials. A report on that testing program follows the report of the ninth grade evaluation.

A. The Social Studies STEP Tests: In conjunction with the project directors, the project evaluator chose the Social Studies STEP tests published by the Cooperative Test Division of Educational Testing Service in 1957. The test contains 70 multiple choice items which measure, according to the scorer's manual;

> social studies understandings, abilities to read and interpret social studies materials (maps, graphs, the printed word, etc.), skills in seeing relationships among basic facts, trends, and concepts, and ability to analyze such material critically.

The STEP test has had very favorable reviews (see Buros Yearbook, 1959) and apparently measures some of the skills which the experimental curriculum had included among its objectives. However, one reviewer stated that the STEP tests "do not primarily measure the higher mental processes." Form 2a was administered to the control and experimental groups at the beginning of the ninth grade, Form 2b in the middle of the year, and Form 2a at the end of the year. A discussion of the results follows:

(1) The STEP test was not a difficult test for many of the students. Many students at one school scored at or above the 80th percentile (based on national norms).

(2) All groups, both experimental and comparison, showed significant gains over the entire ninth grade period.

(3) An analysis of co-variance showed that differences between experimental and comparison groups at only one school were statistically significant. The experimental group at this school gained significantly more during the first semester than the comparison group, and the comparison group gained significantly more during the second semester. However, the differences between all experimental and comparison groups (including the school where gains were significant) were not statistically significant.

These results indicate that one year of the experimental curriculum did not have a significantly greater effect on performance on the STEP test. However, since the test was not difficult enough to discriminate among many of the top scoring students, different results might be obtained if more discriminating tests had been used.

b. The Peltier-Durost Civics and Citizenship Test: Again, in conjunction with the directors, the project evaluator chose the Peltier-Durost Civics and Citizenship Test published in 1958 by Harcourt, Brace, and World. This test was designed to measure the objectives of traditional civics courses, and the directors wanted to know how well the experimental curriculum met these standard objectives. As defined by the test manual, the Peltier-Durost test measures,

> ...the generally accepted outcomes of instruction in a civics and citizenship course such as commonly offered in ninth grade. These objectives, broadly stated, include the acquisition of information concerning the structure and functions of government at federal, state, and local levels, and development of understanding of certain concepts and processes central to the democratic type of government. ...

Since the experimental course in government was only one semester long rather than the normal year, since it emphasized behavioral studies of politics rather than structural studies, and since it devoted only a little more than half the semester to studying United States government in order to include a comparative study of the Soviet Union, we did not expect the experimental students to score as well as comparison students on the test. Form Am of the test was administered at the beginning and the end of the ninth grade. A discussion of the results follows.

(1) Again, the test was not difficult for many students in the two groups. Many of the students performed better than the national average, and in one school 75% of the students in both experimental and comparison sections had percentile ranks above the sixtieth percentile (based on national norms).

(2) All groups, comparison and experimental, made significant statistical gains over the time between the administration of the tests.

(3) The results of an analysis of covariance indicated that comparison groups at two of the schools gained significantly more than the experimental groups in those schools. In the other schools, no significant statistical differences were found.

These results indicate that the experimental curriculum does contribute to achieving the traditional objectives of civics courses, but not as much as traditional courses do.

c. The Watson Glazer Critical Thinking Appraisal: At the suggestion of the project evaluator, the Watson Glazer Critical Thinking Appraisal published by Harcourt, Brace, and World in 1952 was administered at the beginning and the end of the ninth grade. According to the manual, the test:

> ...provide(s) problems and situations which require the application of some of the important abilities involved in critical thinking.

The test has five subsections, which indicate some of the behaviors being measured, namely, (1) inference, (2) recognition of assumptions, (3) deduction, (4) interpretation, and (5) evaluation of arguments. Though many of these abilities are involved in the inquiry objectives of the Carnegie curriculum, in the Watson Glazer Test they are generalized to the point that the abilities no longer have a specific connection to elements of social science disciplines. Nonetheless, the directors did want to know if the experimental curriculum helped the students cultivate these skills more than the traditional course of study in the Pittsburgh Schools. A discussion of the results follows:

(1) Again, the test was not difficult. Most of the students in the experimental and comparison classes performed much above the national average on this test. The average stanine was about 6 or 7 when the test was administered the first time.

(2) The students in both the experimental and comparison groups performed significantly better at the end of the year except in one of the schools.

(3) None of the experimental groups gained significantly more than their corresponding comparison groups. However, though gains were not statistically significant, slightly larger gains were observed for the experimental groups.

These results indicate that the first year of the experimental curriculum did not produce significantly larger gains in the abilities measured by the Watson-Glazer test than the regular curriculum, though apparently it had some slightly more positive effect.

d. Test of Economic Understanding: Because half of the ninth grade course in the experimental curriculum was devoted to economics, while economics received less attention in the regular civics course, the directors chose to administer the Test of Economic Understanding published in preliminary form by Science Research Associates in 1963. The 50 items on the test were constructed by an eminent group of economists to measure the objectives set forth in the report of the National Task Force on Economic Education. Form A of the test was administered at the beginning, the middle, and the end of the ninth grade to all students. A discussion of the results of this test follows:

(1) For most students, the Test of Economic Understanding was quite difficult. The mean score for most groups, before instruction in economics had taken place, was 23. Since this was a preliminary version of the test, no national norms existed.

(2) All groups, with the exception of the comparison group in one school, showed a significant gain between each of the three administrations of the test.

(3) An analysis of covariance indicated that the mean gain of the experimental groups was significantly greater than the mean gain of the comparison groups.

The results indicate, as expected, that greater attention to economics produced significantly greater understanding of economics.

2. Testing the effects of the tenth grade program

The two experimental groups and two comparison groups set up during the first year of the curriculum project had finished the tenth grade course before the project abandoned standardized testing. Four tests were administered to these four sections. What they revealed is discussed below.

a. Social Studies STEP test: The same test that was used for the ninth grade study, only at a higher level (level 1), was used in tenth grade. Level 1 is intended for college freshmen and sophomores. The test was administered at the beginning and the end of the tenth grade. A discussion of the results follows:

(1) Both comparison and experimental groups performed at a high level at the beginning of the tenth grade. Many students had percentile ranks of 85 and above, based on national norms.

(2) Both groups showed significant gains in those social studies skills measured by the test during the tenth grade.

(3) The difference between the mean gains of the two groups over the tenth grade was not statistically significant. Both groups gained approximately the same over the two years.

Again, the results indicate that the experimental curriculum apparently had no significant positive effect on the students' ability to use the social studies skills measured by the test, though once again, the test did not discriminate among the better students.

b. ITED: Test 5: The Iowa Tests of Educational Development, Test 5: Ability to Interpret Reading Materials in the Social Sciences, a 1952 publication of Science Research Associates, was administered to the two groups at the beginning and the end of the tenth grade. According to the manual, the test measures

> ...the student's ability to interpret and evaluate representative reading selections taken from social studies textbooks and references, from magazines and newspaper articles on social problems, and from the literature of the social studies in general. ... Specific abilities measured...are: (1) ability to understand what is stated in a selection; (2) ability to understand what is implied in a selection, and (3) ability to evaluate a selection critically.

Though none of the more sophisticated inquiry skills are measured by this test, the staff wished to determine if the experimental curriculum had any effect on the students' ability to read closely and carefully. The results obtained were:

(1) Both groups performed above the national average at the beginning of tenth grade. Many students had percentile ranks of 75 and above.

(2) Both groups showed significant gains in the skills measured by the ITED Test during the tenth grade.

(3) The difference between the mean gains of the comparison and experimental groups was not statistically significant. Both groups gained equal amounts in the ability to interpret reading materials in the social sciences.

These results indicate that the experimental curriculum had no significantly more positive effect on students' ability to read and interpret social science materials than the regular curriculum.

c. Test of Economic Understanding: The same test that was administered to the ninth grade groups was administered to the tenth grade groups to determine if the inclusion of slightly more economic history in the experimental course added to the growth that had been observed in ninth grade. The results were:

(1) Both groups showed significant gains in economic understanding during the tenth grade, though the gains were small.

(2) The difference in gains during the tenth grade between the two groups, however, were not statistically significant.

These results indicate that the first (unrevised) version of the experimental tenth grade materials did not bring about significantly more improvement of the students' understanding of economics than the regular curriculum.

d. World History Test: The World History Test published by The Cooperative Test Division of Educational Testing Service was administered to students at the beginning, the middle, and the end of the tenth grade. The Curriculum Center wished to discover if only one semester of European history significantly reduced the amount of knowledge students gained about the subject, and whether emphasis on inquiry objectives caused a sacrifice in general knowledge of world history. The World History Test is devoted mainly to the history of western civilization, with only 25 percent allocated to Asia and Africa. One half of the tenth grade experimental course was devoted to Asia, Africa, and Latin America. The results obtained from the administration of this test were:

(1) The percentile ranks of many of the students' scores in both groups were 55 and above. These percentiles are based on national norms for 10th, 11th, and 12th grade students. If national norms were available for the tenth grade only, the scores would have been significantly higher in rank.

(2) Both groups showed significant gains during both the first and the second semester, and for both semesters combined.

(3) None of the differences between the mean gains of the experimental group and the comparison group were statistically significant, though the comparison group showed a slightly larger gain during the first semester.

These results indicate that little, if anything is sacrificed in the way of general knowledge of world history when a course increases its emphasis on inquiry skills. Moreover, only one semester of European history did not seem to detract from the experimental students' ability to score on a test which devotes over 75 percent of its items to that subject.

3. Summary of standardized testing program

The standardized testing program indicated that with one exception, the experimental group did not make significantly greater gains than the comparison groups in the objectives measured by the tests. The exception was the experimental group's significantly greater gain in economic understanding. While the students in the experimental group apparently suffered little or no loss of content, neither did they improve significantly more than the students in the comparison groups in their ability to use the general skills measured by tests such as the Watson Glazer Critical Thinking Appraisal or the Social Studies STEP tests. Yet, the teachers of the experimental classes insisted that the students were learning valuable skills that were not measured by the standardized tests. The staff of the Curriculum Center, therefore, decided to restudy the evaluation program and try to develop a test or tests which would measure the abilities which had not been evaluated.

D. Evaluation of the Curriculum Using a Specially Prepared Test

The staff of the Curriculum Center was aware of the dangers involved in developing a new test to measure the students' achievement of those objectives not covered by standardized tests. In the first place, the test could not be standardized; consequently, national norms and the validity and reliability of the test would be open to question. Second, the staff of the Center realized that some critics have objected to evaluating new curricula by comparing experimental and control groups with tests based on the new curricula alone.

The Center did all it could to make the test valid and reliable. The behaviors to be measured were carefully described and the test constructed to those specifications. The test was pre-tested on a twelfth grade group which had taken the experimental program. An item analysis was conducted on these scores to eliminate items which were too easy or too hard or did not discriminate between high and low scorers. An item analysis of the final version of the test from which the data were obtained revealed that only two items failed to discriminate between the upper half and the lower half of the students who took the test, that half of the items discriminated very well between the upper and lower halves, that 75 percent of the items discriminated well between the highest quartile and the lowest quartile, and that 21 items out of 50 discriminated among all quartiles.

To answer the critics who object to comparative evaluations using instruments which measure only the objectives of the new curricula, the Carnegie group replies that a new curriculum implies new goals. To determine whether or not the new curriculum does a better job of helping students achieve these goals than the regular curricula in the schools, measuring instruments which test for the new objectives must be employed. If the new curriculum can not demonstrate that it accomplishes these new goals better than the old curriculum does, it can not claim to have made a significant impact.

Though "critical thinking" has occupied an honored place in the lists of objectives which adorn every curriculum guide, the behaviors involved in critical thinking are rarely fully described. Moreover, an examination of content, materials, and strategies used in textbook-based curricula reveal that little attention is given to helping students develop these critical thinking skills. Finally, critical thinking implies only part of the aims which the Carnegie staff had identified with teaching students how to use a mode of inquiry, namely, the testing of hypotheses. Since the research of the Curriculum Center had resulted in the statement of new objectives for the social studies, the need to develop an instrument which would measure the students' mastery of inquiry objectives became obvious. Accordingly, the staff designed the Carnegie Test of Social Studies Inquiry Skills. *

1. The Carnegie Test of Social Studies Inquiry Skills

The Carnegie Test of Social Studies Inquiry Skills is an objective test, containing fifty items. Ten of the items require students to match terms with their definitions. The remainder are multiple choice items. The behaviors measured by the test are:

1. The ability to recognize definitions of procedural concepts (e.g. hypothesis, concept, generalization, fact) used in a mode of inquiry. (10 items)
2. The ability to recognize problems which can be solved by use of a mode of inquiry as opposed to those which cannot. (5 items)
3. The ability to recognize problems of interpretation as opposed to problems of finding data only. (5 items, the same used to measure behavior #2)
4. The ability to recognize the social science concept with which a question or hypothesis is associated. (10 items)
5. The ability to recognize statements which follow logically from a hypothesis as opposed to those which do not. (5 items)
6. The ability to recognize sources which would be more likely to yield data for testing a hypothesis as opposed to those which would not. (5 items)
7. The ability to recognize data which is relevant to a hypothesis as opposed to that which is not. (3 items)
8. The ability to recognize generalizations which summarize data or can be inferred from data as opposed to those which do not. (4 items)
9. The ability to recognize statements of fact which are likely to be accurate as opposed to those which are not. (3 items)
10. The ability to recognize when new data requires modifying a hypothesis. (5 items)
11. The ability to recognize an appropriate modification of a hypothesis which accounts for new data. (5 items, the same used to measure behavior #10)

The staff of the Curriculum Center does not claim that the test completely measures the students' ability to use the mode of inquiry we have taught them. Whether or not the student will be able to use the skills and knowledges measured by this test in an unstructured, non-cued situation cannot be ascertained from it. However, the test does measure the skills and knowledges which make up our version of

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* A copy of the test appears in the Appendix to this Report.

a mode of inquiry. We can hypothesize that if students cannot demonstrate that they can perform the behaviors listed above, they will not be able to carry on an independent investigation. Also, by implication, we can hypothesize that students who have a greater command of these knowledges and skills, will conduct a better investigation than those who have less command.

2. Administration and Results of the Test

The Carnegie Test of Social Studies Inquiry Skills was administered to 190 students in the two high schools where comparison and experimental sections had been maintained for the four-year life of the project. Seventy-eight of the students were in comparison sections, 112 in experimental sections. All had completed three years of the social studies curriculum; the test was administered at the end of the eleventh grade.

The results of the CTSSIS were treated in an analysis of covariance, reported in Table 1 as a set of regression coefficients. The co-variate, the Otis I.Q. score of each student, was used to control for dissimilar I.Q. distributions in the two groups. The Otis I.Q. test places heavy emphasis on verbal abilities and performance on the CTSSIS depended heavily upon verbal facility.

The experimental variable is a dummy variable set to one for the group receiving the experimental curriculum and to zero for the comparison group. This formulation is convenient because the regression coefficient of the experimental variable can be interpreted directly as the incremental effect (positive or negative) of the experiment.

Table 1. Analysis of Covariance Results

Variable	Regression Coefficient	t-statistic
I.Q.	.4162	6.996*
Effect of experimental curriculum	5.8484	6.038*
Constant	-30.315	

Coefficient of variation = .3040*

*Significant beyond the .01 level.

Both I.Q. and the experimental curriculum have highly significant positive effects on performance on the Carnegie Test of Social Studies Inquiry Skills. The correlation between I.Q. and the experimental variable is -.0520, indicating that the mean I.Q. of the experimental group is somewhat lower than that of the comparison group. The two variables, together with the constant, explain about thirty percent of the variation in performance on the test; this is shown by the coefficient of variation which is also highly significant.

The coefficients of regression themselves can be interpreted as sensitivities of performance to I.Q. and the experimental curriculum for this special group of able students, in each case holding the other variable constant. As a linear approximation in the observed range of values, a one point positive difference in I.Q. for this special group was associated on average with a positive difference of .4 points on the test. Likewise, if I.Q. is held constant, the average effect of the experimental curriculum on performance was 5.8 points in score--better than ten percent on the fifty question test.

This analysis of covariance of test scores of the two groups indicates, therefore,

(1) Students who had taken the experimental curriculum scored significantly better on the test than students who had been in the comparison groups. Given students of equal I.Q. scores, those who take the experimental curriculum average nearly six points better on the test than those who take the regular curriculum. This difference in scores is highly significant statistically (beyond the .01 level).

(2) A student's I.Q. as measured by the Otis test is also related to performance on the Carnegie Test of Social Studies Inquiry Skills. This finding probably reflects the heavy dependence of the test on verbal skill, even among this group of students selected basically because of better-than-average I.Q.

The emphasis of the Carnegie curriculum on inquiry objectives apparently paid off. An item analysis of the CTSSIS revealed that the students in experimental sections performed better than students in comparison sections on every behavior tested, except behavior No. 5, the ability to recognize generalizations which follow logically from a hypothesis. All items discriminated between experimental and comparison students except in this section of the test. The experimental students performed significantly better than comparison students on at least two items in every section of the test, except on those which tested the ability to recognize the logical implications of hypotheses. The gains of the experimental students, therefore, were not registered primarily in those sections where knowledge of a technical vocabulary was required.

E. Assessing affective objectives

The Carnegie staff was unable to develop any means of assessing the impact of the curriculum on the attitudes and values of the students. Whether or not experimental students have a more articulated, more clarified, and better justified value system than comparison students remains a mystery. Whether they show a significantly greater preference for assertions based upon scientific inquiry than comparison students is unknown. The construction of an instrument which measures affective outcomes without eliciting "socially desirable" responses was a difficulty that the Carnegie group could not overcome.

A questionnaire was administered to students who had taken the experimental curriculum to determine their attitude toward the new courses. The questionnaire allowed the students to respond freely to the various questions asked; consequently, no quantifiable data were obtained. However, an analysis of the student responses revealed that only two students preferred the regular curriculum to the experimental curriculum. Most of the students who responded to the questionnaire stated that the emphasis on inquiry was the new curriculum's major strength. Many stated that they preferred the curriculum for this reason. Many students also stated that they felt the new curriculum did not give them enough "facts." They believed that they could not perform well on standardized tests, despite evidence that they performed as well as the comparison students. About fifteen percent of the students who responded to the questionnaire responded that the project courses had helped formulate their plans for college, all of these stating that they intended either to take more history and social science courses and most of these indicating that they intended to major in one of the social sciences. About thirty percent of the students indicated that social studies had been their favorite course in high school.

Summary of Research

The Carnegie Center conducted research in all of the areas designated by the Cooperative Research Branch of the United States Office of Education. The research required to establish aims and create new materials, methods, and learning sequences continued for the life of the project. As new findings became known, the Carnegie group adjusted its rationale and modified its materials and strategies to account for the new knowledge. If the project were to continue, our objectives and approaches would continue to be refined.

The evaluation of the effects of the curriculum indicated that students who were in the experimental classes suffered no great loss in the mastery of content as measured by standardized tests. The curriculum did not have a significantly greater effect than the regular curriculum in helping students develop the generalized skills measured by standardized tests. However, in its area of major emphasis, the development of social studies inquiry skills, the experimental curriculum proved to be significantly better than the regular curriculum. If this is the only area where the new social studies curriculum has made a significant contribution to the growth of the child, the staff of the Carnegie Center is pleased with its efforts.

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APPENDIX I

THE CARNEGIE TEST FOR SOCIAL STUDIES INQUIRY SKILLS

Directions:

The examination which follows has been designed to test your knowledge of and ability to use a mode of inquiry from the social studies. You have been studying the inquiry skills called for in this examination throughout your work in social studies courses. The test assesses your mastery of inquiry skills by calling on you to use them in a new situation.

The examination has seven sections. The first requires you to match key terms with their definitions. The remaining six sections all contain multiple choice questions. For all seven sections, write your answers on the answer sheet provided. DO NOT WRITE OR MAKE ANY MARKS IN THE EXAMINATION BOOKLET.

The entire examination requires forty minutes. Work steadily: do not pause between sections. If you cannot answer a question, go on to the next one and return to ones you have skipped if time remains near the end of the examination period. If you are able to eliminate one or two of the four choices in the multiple choice questions, it will probably be to your advantage to guess among the remaining possibilities.

Write your name and the other information called for at the top of your answer sheet. Do not open this examination booklet until your teacher tells you to do so.

Section I

A mode of inquiry involves the use of a technical vocabulary. Below you will find eleven terms followed by ten definitions. Place the letter which appears before the appropriate term in Group 1 in the blank on the answer sheet before the definition in Group II. For your convenience, the definitions in Group II have been repeated on the answer sheet. WARNING: Some terms will not be used at all. Others may be used more than once.

A. historical question
B. historical definition
C. hypothesis
D. fact
E. data
F. frame of reference
G. generalization
H. evidence
I. theory
J. concept
K. none of the above

1. A tentative explanation for an event or development.
2. Information about past or present society.
3. A conclusion about past or present society developed as the end product of an investigation in the social studies.
4. Information which has a bearing on a hypothesis under investigation.
5. A description of the way in which the meaning of a general term has changed in time and place.
6. A statement about a person, event, etc. which meets the tests for historical credibility.
7. The way in which a person looks at the world.
8. An issue which can be settled to the satisfaction of most scholars by the use of a historical method of inquiry.
9. An issue involving a conflict between two values.
10. A category or way of classifying data which can be defined but cannot be proved true or false.

Section II

Inquiry in the social studies begins with questions. All questions, however, cannot be answered satisfactorily by the use of social studies inquiry skills. Below you will find five sets of four questions each. From each set choose the one question which you think will prove to be most fruitful as a beginning point of an inquiry which can develop a valid generalization. On your answer sheet, make a heavy mark below the letter corresponding to the best answer.

11. A. Was Christ the son of God?
    B. Did slavery cause the Civil War?
    C. Can the United States justify its role in the war in Vietnam?
    D. How many soldiers were killed with General Custer?

12. A. Is integration of the public schools good?
    B. Will the Russians win the Cold War?
    C. What sort of people did Louis XIV appoint as political leaders?
    D. When did Columbus sail?

13. A. Is Hinduism better than Christianity?
    B. What is the airline distance between New York City and Moscow?
    C. Should Congress appropriate additional funds for education?
    D. What caused the race riots in northern cities during the summer of 1966?

14. A. How many states had universal manhood suffrage by 1828?
B. Which is the better source of information, newspapers or the writings of the French traveler, Alexis De Tocqueville?
C. Why did Andrew Jackson win the election of 1828?
D. Were the political reforms of the Jacksonian period good for the American people?

15. A. What governmental system do you prefer, totalitarianism or democracy?
B. Are people happier under traditional or command economies?
C. What accounts for the high rate of economic growth in the Soviet Union during the 1950's?
D. In which nation does the higher percentage of citizens vote, the United States or the Soviet Union?

Section III

Once a student has identified a question or a problem area in the social studies, he must develop a hypothesis. Many hypotheses grow out of social science concepts. This section of the examination tests your ability to work with concepts. Each question below is introduced by a hypothesis. From the list which follows it, choose the concept with which it is most closely associated. On your answer sheet, make a heavy mark below the letter corresponding to the best answer.

16. The Rules Committee of the House held up the bill.
A. ideology B. institutions C. leadership D. citizenship

17. Medieval peasants were expected to bow to the lord of the manor.
A. social class B. status C. norms D. role

18. Franklin D. Roosevelt's speaking ability and his excellent radio voice won him considerable public support.
A. decision-making C. leadership
B. ideology D. citizenship

19. In the long run, the powerful, sophisticated westerners will probably exterminate those primitive natives.
A. culture change C. norms
B. group interaction D. groups

20. If we want to increase the rate of economic growth substantially, we ought to spend far more money for education.
A. production B. resources C. business cycles D. institutions

21. If we continue to spend so large a portion of our budget on defense, we cannot clean up slum housing.
A. scarcity and choices C. production
B. institutions D. culture change

22. Democratic government diffused from the West may have an impact on the organization of the entire village.
A. norms B. institutions C. group interaction D. culture chang

23. In the American social structure, education and wealth can help to determine your membership.
A. citizenship B. social class C. groups D. status

24. The sharp decline in the value of stocks which began in October, 1929, caused the depression.
A. price B. production C. institutions D. business cycles

25. If we raise wages without raising prices or increasing productivity, profits and hence dividends will fall.
A. production B. distribution C. resources D. ideology

Section IV

Once a student has stated a hypothesis, he must support it, revise it, or abandon it completely if he hopes to develop a valid generalization. The first step in the process consists of deducing the logical consequences of a hypothesis. Each question below begins with a hypothesis followed by four statements. Choose the one statement which most clearly follows from the hypothesis. On your answer sheet, make a heavy mark below the letter corresponding to the best answer.

26. If the hypothesis, "The stock market crash of 1929 caused the depression," is true, you would find all of the following facts or generalizations supported by the data EXCEPT:
A. The number of housing starts continued to decline at the same rate after October, 1929.
B. After the stock market crash of 1929, businessmen began to cut back production.
C. Unemployment increased after 1929.
D. The average price of stocks declined rapidly some time during 1929.

27. If the hypothesis, "Slavery was the principle cause of the Civil War," is valid, you should find all of the following statements supported in the data EXCEPT:
A. Almost all slaveholders lived in the states which seceded instead of in those which remained in the Union.
B. Abraham Lincoln, who opposed the extension of slavery into the territories, received all of his electoral votes from northern states.
C. Slavery helped to cause different social systems to develop in the South and the North.
D. In the 1850's Congressmen spent a relatively small amount of their time discussing the institution of slavery.

28. If the hypothesis, "The Civil War and the Reconstruction did not make a permanent impact on southern politics," is valid, you would find all of the following statements supported by data, EXCEPT:
A. Many former slaves held political offices after Reconstruction.
B. Many of the leaders of the Confederate states were sent to Congress after Reconstruction.
C. The Democratic party, which had dominated southern politics before the Civil War, continued to dominate it after the War and Reconstruction.
D. As before the War, the overwhelming majority of Southern congressmen and senators had been born in the South.

29. If the hypothesis, "Louis XIV made decisions on the basis of information he received from members of the Court at Versailles," is valid, all of the following statements would be supported by the data EXCEPT:
   A. Louis often had audiences with members of the Court.
   B. Members of the Court used their audiences with the King to give him information about the problems in their province.
   C. An audience with the King usually lasted two or three minutes.
   D. When trying to decide what to do, Louis often reported information that he had received from a member of his Court.

30. If the hypothesis, "The success of the Protestant Reformation was due to the support of the rising merchant class," is valid, all of the following statements will be supported by the data EXCEPT:
   A. Many merchants joined Protestant churches.
   B. Many merchants realized increased profits after the Reformation.
   C. Many merchants donated money to support Martin Luther.
   D. Many merchants had disagreed with the Catholic church's prohibition on charging interest.

Section V

Problems, hypotheses, logical consequences. The student must now gather data to find out whether the logical consequences he has deduced meet the test of evidence. His next step is to identify the types of sources which will be likely to yield useful evidence. Each question which follows contains a hypothesis followed by several possible sources of data. Choose the one most likely to yield useful evidence. On your answer sheet, make a heavy mark below the letter corresponding to the best answer.

31. Negroes have more social mobility in the North than in the South.
   A. newspaper articles about race riots in northern and southern cities.
   B. speeches made by Negro leaders in southern and northern towns.
   C. census records of occupational statistics by generations.
   D. records of employment bureaus in the North and the South.

32. The Kaiser's extreme nationalist feelings caused him to make decisions that increased the possibility of war in 1914.
   A. diplomatic correspondence between the Kaiser and other European rulers in 1914.
   B. newspaper editorials from German language newspapers in 1914.
   C. the Kaiser's public speeches and private memoranda during the period just before and during the outbreak of hostilities.
   D. the Kaiser's letters to his wife during 1914.

33. The tremendous growth of Dodge City was due to the completion of the railroad between Dodge City and Independence, Missouri in 1872.
   A. a newspaper editorial praising the railroad in 1872.
   B. building permits issued in Dodge City from 1870 to 1880.
   C. the census of 1880.
   D. the list of employees who worked on the railroad in 1872.

34. There was little social interaction between people in upper and lower classes in Pittsburgh in 1825.
   A. the list of employees of Pittsburgh's ten largest companies in 1825.
   B. the records of births in Pittsburgh in 1825.
   C. the society columns which report marriages in Pittsburgh in 1825.
   D. the records of doctors, indicating their patients in 1825.

35. Louis XIV wanted the world to realize that he was a glorious king.
   A. Colbert's minutes of meetings of the Council of State.
   B. Moliere's play, The Imaginary Invalid, which was commissioned by Louis XIV.
   C. the decree removing tolls on the Rhone River.
   D. the palace at Versailles, built by Louis XIV.

Section VI

Once a student has selected sources for data, he must collect, analyze, evaluate, and interpret the evidence he finds. He must know when the information he finds is accurate and when it is mistaken. He must also know the implications of the data once he is convinced that it is correct. The following questions test these abilities. For each one, choose the most useful of the four choices. On your answer sheet, make a heavy mark below the letter corresponding to the best answer.

Questions 36 and 37 refer to the following facts about Country X.

I. Population: 30,000,000
II. Population increase: 1,000,000 per year
III. Birth rate: 4,000,000 per year
IV. Number of trained doctors: 2,000

36. Which of the facts given above would you include in your notes if you had asked the question, "What is the population growth rate of Country X?"
   A. I only
   B. II only
   C. I and II only
   D. I and III only

37. Which of the facts given above would you include in your notes if you had developed the hypothesis, "The population of Country X is growing at the rate of 10% per year."?
   A. I only
   B. II only
   C. I and II only
   D. none of the above.

Questions 38 through 41 refer to the following table.

Year	No. of Automobiles in United States
1910	460,000
1920	8,130,000
1930	23,000,000
1940	27,470,000
1950	40,330,000
1960	56,000,000

38. If we go by the facts given in the table above, the statement, "The greatest rate of increase in the number of automobiles in the United States took place between 1910 and 1920,"
A. is definitely true.
B. is definitely false.
C. is probably true.
D. cannot be validated or inferred one way or the other from this data.

39. If we go by the facts given in the table above, the statement, "The total consumption of gasoline increased between 1910 and 1960"
A. is definitely true.
B. is definitely false.
C. is probably true.
D. cannot be validated on inferred one way or the other from this data.

40. If we go by the facts given in the table above, the statement, "More families owned two cars in 1960 than in 1950"
A. is definitely true.
B. is definitely false.
C. is probably true.
D. cannot be validated or inferred one way or the other from this data.

41. If we go by the facts given in the table above, the statement, "Americans appropriated more money for building and maintaining roads in 1950 than they did in 1910"
A. is definitely true.
B. is definitely false.
C. is probably true.
D. cannot be validated or inferred one way or the other from this data.

42. Which of the following grievances drawn up by the common people of a French town in 1788 would you include in your notes if you had asked the question "Did the French people revolt against their government in order to obtain more freedom?"
A. We wish to see the laws reformed.
B. We wish to see taxes paid in proportion to income.
C. We wish to see a law requiring officers to charge us with a crime in order to hold us after arrest.
D. We wish the abolition of taxes that harm commerce and industry.

43. Which of the following persons seems least likely to have a bias about the cause of race riots?
A. a local police officer.
B. a correspondent for a Negro newspaper.
C. A British visitor from a small town in Yorkshire.
D. an officer of the American Civil Liberties Union.

44. Which of the following persons has the best opportunity to tell the truth about an event?
   A. a reporter who gathered news from several eyewitnesses on the day following the event.
   B. an eyewitness who has not yet told anyone about what he saw.
   C. an eyewitness who made notes on the back of an envelope immediately after the event.
   D. a participant intimately involved in what happened.

45. Which of the following statements would you accept as the most accurate reporting of an incident?
   A. "The king's guards ruthlessly gunned down the protestors."
   B. "All I remember was that the mob began to fire on us, so we returned the fire."
   C. "I heard a shot come from somewhere and all of a sudden the guards began to shoot at the protestors."
   D. "I have interviewed twenty eyewitnesses who said that they did not see anyone in the crowd fire at the guards."

Section VII

The final step in the process of inquiry involves making a generalization. If the hypothesis has been found to be accurate, the student may simply restate it. If it was not accurate, he must rephrase it or write a completely new generalization. The following questions test these abilities. On your answer sheet, make a heavy mark below the letter corresponding to the best answer.

46. Suppose you had begun with the hypothesis, "Race plays no important part in determining a man's social position in Brazil" and then found the data in the table below. What would you do with your hypothesis?

Percentage of Each Race in the Social Classes of Minas Velhas, Brazil

	White	Mulatto	Negro	All Races
Class A (upper)	20	4	0	12
Class B (middle)	69	61	60	63
Class C (lower)	11	35	40	25
Totals	100%	100%	100%	100%

   A. I would not change my hypothesis.
   B. I would change my hypothesis to "Race plays a very important role in determining a man's class position in Brazil."
   C. I would change my hypothesis to "Race plays a very important role in determining a man's class position in Minas Velhas, Brazil".
   D. I would change my hypothesis to "Race plays a very important role in determining the composition of the upper class in Minas Velhas, Brazil".

47. Suppose you had begun with the hypothesis, "In the nineteenth century, China turned its back on the West and all it stood for," and then found the following statement written by a Chinese official in 1852. What would you do with your hypothesis?

> "Everything in China's civil and military systems is far superior to the West. Only in firearms must we catch up."

A. I would not change my hypothesis.
B. I would change my hypothesis to: "China was anxious to adopt western ways."
C. I would change my hypothesis to: "China was anxious to learn western technology, but little else."
D. I would change my hypothesis to: "China felt inferior to the West, so it turned its back on western ways."

48. Suppose you had begun with the hypothesis, "Chinese leaders instituted the communes in 1958 in order to carry out the goals of Communism," and then found the following statement in the decree establishing the communes. What would you do with your hypothesis?

> "The purpose of the people's communes is mainly the all-continuous leap forward in China's agricultural production. The communes will complete the building of socialism ahead of time and carry out the gradual transition to Communism."

A. I would not change my hypothesis.
B. I would change my hypothesis to, "China instituted the communes to allocate more human resources to agriculture."
C. I would change my hypothesis to, "Chinese leaders instituted communes to promote economic growth and to promote the goals of her ideology."
D. I would change my hypothesis to, "Chinese leaders instituted communes to increase their control over the people."

49. Suppose you had begun with the hypothesis, "In 1860, most people did not wish to take a strong stand on the slavery issue," and then came across the data below. What would you do with your hypothesis?

Candidate and position on slavery	Vote
Abraham Lincoln (opposed extension of slavery into new territories)	1,866,352
Douglas (no stand on slavery, per se)	1,375,157
Breckinridge (slavery must be protected in territories)	849,871
Bell (no stand on slavery, per se)	589,871

A. I would not change my hypothesis.
B. I would change my hypothesis to, "The majority of people who voted in the election of 1860 voted for candidates who took a stand on slavery."
C. I would change my hypothesis to, "A majority of those who voted in the election of 1860 took a strong stand on slavery."
D. I would change my hypothesis to, "Only those people who voted for Lincoln in 1860 took a strong stand on slavery."

50. Suppose you had begun with the hypothesis, "The caste system in India influences men to find occupations consistent with their caste traditions," and then found the data below. Indicate what you would do with your hypothesis.

	Percentage of Castes in Selected Occupations		
Caste and traditional occupation	Agriculture %	Industry %	Higher Professions %
Lower caste Farmers	81	5	1
Middle caste Pottery makers	20	66	4
High caste Medicine	6	2	50

A. I would not change my hypothesis.
B. I would change my hypothesis to, "Caste traditions affect only those in the upper castes in the choice of occupation."
C. I would change my hypothesis to "Caste traditions do not affect the choice of occupations in the upper caste as much as they do in the lower and middle castes."
D. I would change my hypothesis to "Only the lower castes are bound to find occupations consistent with their caste tradition."

ANSWER SHEET

THE CARNEGIE TEST FOR SOCIAL STUDIES INQUIRY SKILLS

Name ____________________ School ____________________ Teacher ____________________

Section I

C 1. A tentative explanation for an event or development.

E 2. Information about past or present society.

G 3. A conclusion about past or present society developed as the end product of an investigation in the social studies.

H 4. Information which has a bearing on a hypothesis under investigation.

B 5. A description of the way in which the meaning of a general term has changed in time and place.

D 6. A statement about a person, event, etc. which meets the tests for historical credibility.

F 7. The way in which a person looks at the world.

A 8. An issue which can be settled to the satisfaction of most scholars by the use of a historical method of inquiry.

K 9. An issue involving a conflict between two values.

J 10. A category or way of classifying data which can be defined but cannot be proved true or false.

Mark all multiple choice items as follows: XX. A [✓ B] C D

Section II.

11. A [✓ B] C D
12. A B [✓ C] D
13. A B C [✓ D]
14. A B [✓ C] D
15. A B [✓ C] D

Section III.

16. A [✓ B] C D
17. A B [✓ C] D
18. A B [✓ C] D
19. A [✓ B] C D
20. A [✓ B] C D

Section III (cont.)

21. [✓ A] B C D
22. A B C [✓ D]
23. A [✓ B] C D
24. A B C [✓ D]
25. A [✓ B] C D

Section IV.

26. [✓ A] B C D
27. A B C [✓ D]
28. [✓ A] B C D
29. A B [✓ C] D
30. A [✓ B] C D

Section V.

31. A B [✓ C] D
32. A B [✓ C] D
33. A [✓ B] C D
34. A B [✓ C] D
35. A B C [✓ D]

Section VI.

36. A B [✓ C] D
37. A B [✓ C] D
38. [✓ A] B C D
39. A B [✓ C] D
40. A B C [✓ D]

Section VI (cont.)

41. A B [✓ C] D
42. A B [✓ C] D
43. A B [✓ C] D
44. A B [✓ C] D
45. A B C [✓ D]

Section VII.

46. A B C [✓ D]
47. A B [✓ C] D
48. A B [✓ C] D
49. A [✓ B] C D
50. [✓ A] B C D